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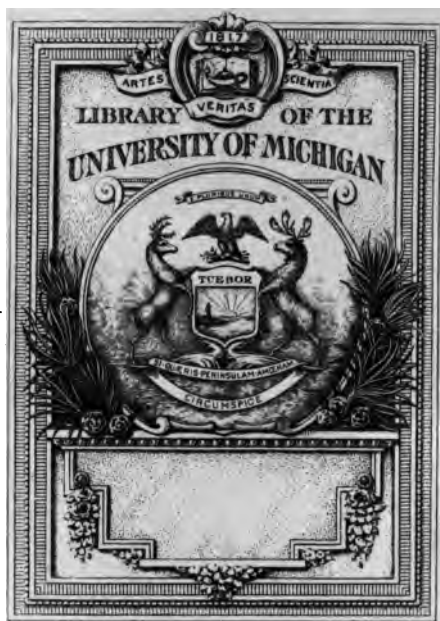
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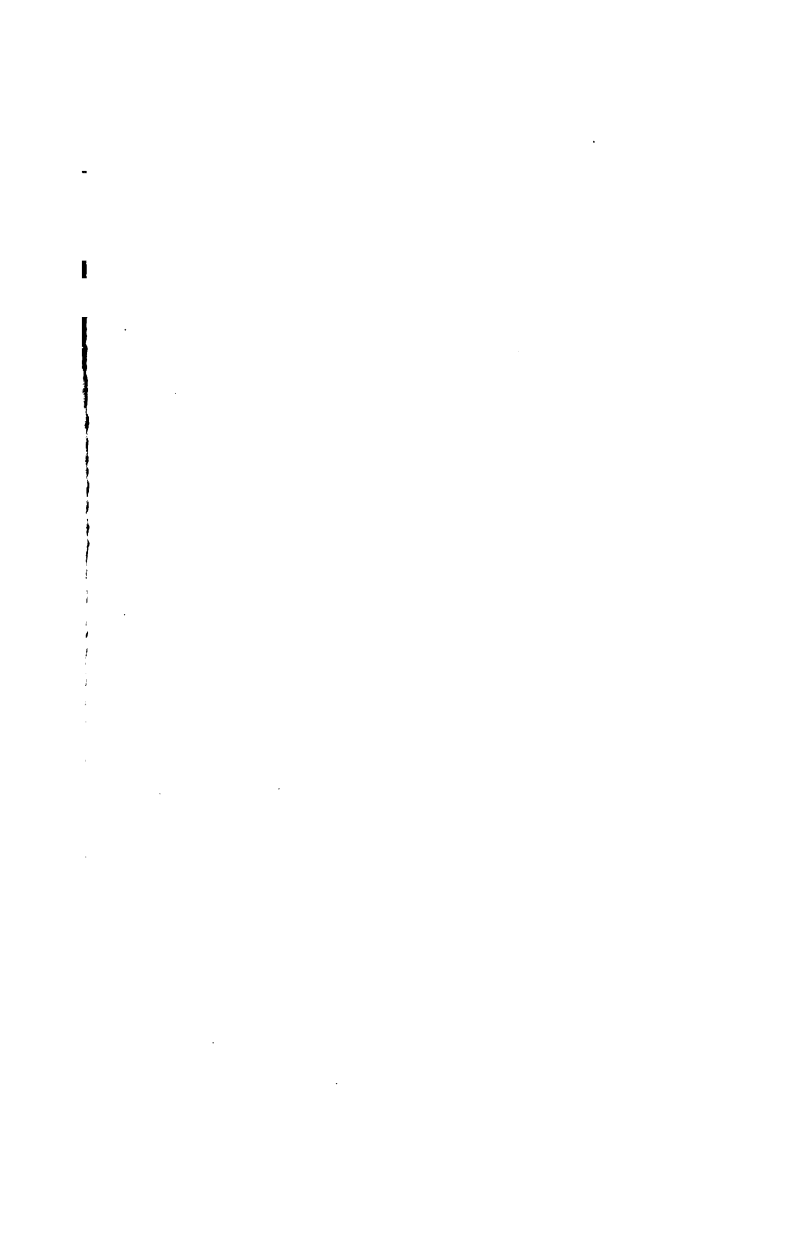
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THE *Lutwidge*
HISTORY
OF

Many memorable Things lost,
Which were in Use among the Ancients:

AND
An Account of many excellent Things found,
now in Use among the Moderns, both
Natural and Artificial.

Written Originally in Latin,
By **GUIDO PANCIOROLLUS;**
And now done into *English*, and illustrated with
a new Commentary of choice Remarks, pleasant Relations, and useful Discourses, from
SALMUTH's large Annotations; with several
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V O L. I.

To this English Edition is added,
First, A Supplement to the Chapter of Printing, shewing the Time of its Beginning, and the first Books printed in each City before the Year 1500. *Secondly,* What the Moderns have found, the Ancients never knew: Extracted from Dr. *Sprat's* (late Bishop of *Rockester*) History of the *Royal-Society*, the Writings of the Honourable Mr. *Boyle*, the *Royal-Academy at Paris*, &c. *Thirdly,* An Index to the Whole.

L O N D O N,
Printed for *John Nicholson* in *Little-Britain*, and sold by
John Morphew near *Stationers-hall*. 1715.

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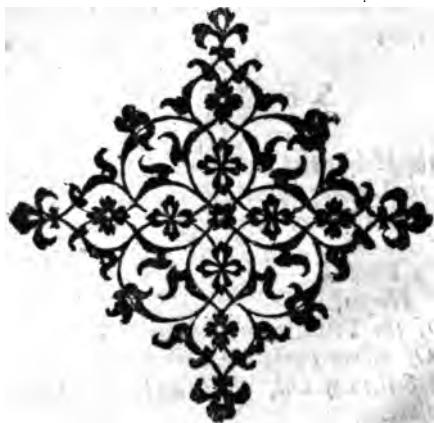
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Alphonsus H. H. H.
gt.



THE
Author's P R E F A C E
TO THE
Duke of S A V O Y.



AMONG those excellent
Conferences held daily by Your
Highness, the Question was
put to me (as I remember) con-
cerning those Things which
were in Use among the Ancients, but are
now discontinued and in Disuse among us;
and also concerning Modern Inventions;
since the Ruin and Decay of the Roman
Empire. Now being very ambitious of
serving Your Highness, it hath been my
constant Endeavour to present You with

The Author's PREFACE

Something, which might be grateful to You I have made a Collection, 1. Of the Natural Productions, of which, being utterly lost, we have no Knowledge. 2. Of the Buildings of the Ancients, and of other Usages and Customs among them which are now laid aside and quite extinct. 3. Of some Modern Arts and New Inventions, recommended to the World in these last Ages.

That by Plutarch's Example Your Highness may draw a Parallel, and make a Comparison between the Latter and the Former, and consider with Yourself, whether is the greater, our Gain or our Loss just as Merchants compute their Receipt on one Page, and their Disbursement on the other, that by balancing their Accounts, they may know their Condition whether they gain or lose.

These Alterations and changes we ascribe to Providence, which, as it hath appointed a Turn, or Vicissitude in all sublunary Things, that some should die, and others be born; so hath it ordained, that some certain Kinds of them, and also some Arts should make their Exit, and others should
ente

to the Duke of SAVOY.

enter on the Stage of the World ; and all this to inspire us (besides other Monitions) with Meditations on the End of this present Life, and with vigorous Breathings after the Eternity of a Future.

I have presented Your Highness with a Catalogue, not of all (which was impossible to do) but of Things most remarkable, the greatest Part whereof I have observed and set down. As for those that concern Religion and Laws, I have purposely omitted them ; they were superstitious, and these required a particular Volume. Here Your Highness may see, not only the Majesty and Grandeur, the Glory and Greatness of Rome, but of the whole Universe : And may be vers'd in those Secrets, the Knowledge whereof will not (I presume) be ungrateful to You. At Your vacant Hours, when releas'd from the Stress of more important Concerns, I beseech Your Highness to vouchsafe an Eye upon this slender Piece, which I devote to Your Service, and which may relieve You, when fatigu'd with mighty Affairs, and refresh Your Weariness, under the Pressure

The Author's PREFACE, &c.
*of that Government that lies upon Your
Shoulders.*

*May the Divine Providence for ever
preserve you in perpetual Peace and pro-
perous Glory. I devote myself wholly and
entirely to Your Highness, with all
and humble Reverence and Submission.*

Guido Pancirollu



T H



THE
PREFACE
OF THE
TRANSLATOR.



THE Author of this Treatise was a Learned *Italian*, Professor of Civil-Law in the University of *Padua*; where in the Year 1887. *SALMUTH* his Commentator heard him (as he tells us) with much Pleasure and Profit, and where he had the Applause both of a numerous and an Intelligent Auditory. He is beyond the reach of Censure and Cavil, and not liable to the Attack of any Objection. I shall therefore make no Apology for him, as if I repented and was ashamed of my Choice; for he hath no Blemishes to abash, but rather Beauties to charm his Ingenuity and Parts rather merit an Encomium, than paint a Blush.

His

The P R E F A C E.

His Subject is as noble, as himself is commendable, being enrich'd with Variety of excellent Matter, most copiously pleasant; so that I am so far from excusing the Version, that I wish I had a Polyglot into which I might render it; it being a Book worthy to be perus'd by all Nations, and justly deserves the Universal Language. 'Tis pity such a Volume should lie by, imprison'd in a Library, lock'd up in *Latin*, as fast as in Chains; for this is a Loss far greater than any it makes mention of. A Work so big with Diversion, and so exceeding Useful, is too good a Morfel for Moths and Worms; and (if it can perish) deserves a better Grave than Dust and Rubbish. This is one Reason why I taught it *English*, being not a little desirous to blazon its Worth, and to rescue it from the Ignominy of so ignoble a Fate.

When I saw it first, I found it loaded with a very large Comment, spread very thick upon it by a *German* Hand, a voluminous Paraphrase not agreeing with the squeamishness of an *Oxford* Stomach, made an ingenious Gentleman of that famous University express in some Company his nauseating of it. The Nicety of his Palate put me upon the Experiment of Tasting, which when I had done, I did not subscribe to his Opinion, viz. That there was *no Relish at all* in his insipid Notes, as he

The P R E F A C E.

was pleased to term them, which I found to be very savoury, being cook'd with Variety of palatable Learning; for *SALMUTH*, his Commentator, hath highly deserved of the Scholastick World, and is to be admir'd for his Reading, and unwearyed Industry, in amassing together such choice Collections and curious Remarks, some of which are very pertinent and proper to the Subject before him.

I have par'd off the Excrescences of his luxuriant Style, and have pick'd out of his Notes the most pat Illustrations; to which I have added some Histories of my own, and some Observations and Remarks, such as I have met with in my slender Reading, and which I thought agreeable to the Argument in Hand.

I do not take this Collection to be a perfect Monopoly of all that Matter, which belongs to this Subject; there are (doubtless) several Things that lie scatter'd in *Pliny* and *Solinus*, in *Dioscorides* and others, which are not to be found in this our Author. There are also many Ceremonies defunct and obsolete Superstitions relating to the Religion of the ancient Pagans, and several Sanctions of primitive Law-givers, which have escap'd the Inventory of curious *PANCIROLLUS*.

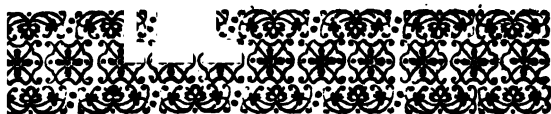
And as for the modern Issues of Art and Nature, they are so numerous, that a bare
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The P R E F A C E.

Index of them would swell a Volume. Who is able to reckon up the vast Improvements of Earning in this last Age? How many Rarities hath that great *Genius* of Philosophy, the Honourable Mr. *BOYLE* found out in Nature? which hath confess'd strange Secrets, when tortur'd on the Rack of inquisitive Experiments.

In every Science we find a *Columbus*, who enriches his Profession with fresh Discoveries. The Astronomer boasts his Variety of Systems and new Appearances. And the Physician glories in the Circulation of the Blood. It would be tedious to instance in the Logarithms of Arithmetick, and in the Sines and Tangents of Geometry. In the Glasses of Opticks, and in a thousand other Inventions of all Arts both Liberal and Mechanical; all which were *Terra Incognita* to ignorant Antiquity.

My reference of the Reader to Mr. *GLANVILL's Plus Ultra*, and to the *Philosophical Transactions*, may excuse me from enlarging on so copious a Subject. They have happily anticipated all Thoughts and Discourses that may be had concerning it: Wherefore, after an humble Recommendation of this Copy to the candid Perusal of all those who either have not, or do not understand the *Original*. I take leave to withdraw from giving the Reader any farther Trouble.



THE
First B O O K
O F
PANCIROLLUS.

S E C T. I.
*Of Natural Productions which are utterly
lost.*

C H A P. I.
Of Purple.



F all those Things, which have
now no Being or Existence in
Nature, that which is most
worthy our Notice, and in the
first Place to be observ'd, is
Purple; which is counted the
chief, and is reckon'd (as it
were) the King of all Colours. (a) The Robes
of
B

of Princes, Magistrates and Senators were wont to be dy'd with it.

As for its Original, it proceeded (*b*) from a kind of Shell-Fish, *i.e.* from a white Vein it carries in its Jaws; out of which, being cut, there flows this Juice or precious Gore, which Wooll and Purple-Silk, for the making of Garments, were tinctur'd with.

I am inclin'd to believe, that this kind of Shell-Fish may be found even now a days, in regard no Species of Things are quite lost, though perhaps it would be useless, because no body knows how to take out that Vein.

This Blood they boil'd with the Vein it self, first open'd in a leaden Vessel, putting to it a little Water of a moderate Heat, which was convey'd to it through a Funnel from a Fire at some Distance. From thence arose that shining and middle Colour between red and black, like that of a Clove-Gillyflower, which, I believe, no other Colour doth more resemble. There did appear also another kind of Colour, which they call'd a violet Colour.

The Reason of the Loss of *Purple*, I presume is, because the Turks, a barbarous People, are Masters of *Syria*, and all those Places where it was wont to be found.

The C O M M E N T A R Y.

(*a*) [*The Robes of Princes, Magistrates, Senators, were wont to be dy'd with it.*]

Hence in *Pliny*, *Purple* is often put for the Chief Magistrate; and therefore when the Roman Government was advanc'd to a Monarchy, their Princes, who were stil'd Emperors (because the Name of King was odious to the Romans) did

did retain Purple for their Imperial Ensign. And the Emperor *Alexius Comnenus*, when he had design'd his eldest Son *John* for the Empire, and gave him the Title of Emperor, he is said by *Nicetas*, to have bestow'd upon him a Pair of *Purple Shoes*. That it was of so great Esteem in former Times, as that none but Kings and their Favourites might wear the same; appears from *Dan. 5. 16. If thou canst read the writing, &c. thou shalt be cloathed with Purple*: And from *1 Maccab. 10. 20, 26.*

[From a kind of Shell-Fish.]

Which Shell-Fish is call'd in Latin, *Purpura*; whereof formerly great Store hath been found near the famous City of *Tyre*: The Inhabitants whereof found out that precious Liquor or Juice, so singularly useful to the dying of Cloaths, and therefore called *Tyrian Color*.

Some Histories tell us they must be taken *alive*, and that chiefly in the Spring Season, at which Time this Juice is most plentiful in them. And that when they are gather'd, they must be thrown together on an *Heap*; that so by their continual Motion, they may vent out this rich *Liquor* together with their Spirit; which done, in some near Place or other provided for the clean keeping of it, it is taken up, and preserv'd for necessary Purposes. This is another way of getting this Liquor mentioned by Authors.

(b) [As for its Original, it proceeds from a kind of Shell-Fish.]

The Invention of *Purple* is ascribed to *Hercules*, who walking along the Shore with a *Damself* he lov'd, by chance his Boy had seiz'd on one thrown up by the Sea, and smear'd his

Lips with the Tincture; which she admiring, refus'd to be his, until he had brought her a Garment of that Colour, who not long after accomplish'd it.

Among several sorts of Shell-Fish, there is not only that which we call the *Purple*, to be found, but also another kind of Fish, which is called *Murex*; which though it differ from the former, yet it is taken (like that) in the Spring time, and sends forth by Attrition, a kind of clammy, viscous Humour, which (if we believe *Vitruvius*) is called *Ostrum*. He tells us that those kind of Shell-Fish, after they are caught, are cut and slash'd with certain iron Instruments, out of whose Wounds, this Purple Matter, by pounding the Fish, doth flow and issue, and is call'd *Ostrum*. Hence we read in *Virgil*, *Lib. I. Æneid*.

Arte laborata vestes, ostroque superbo.

“ On *Tyrian* Carpets richly wrought they dine.

And *Ostro persusa vestes*, Garments tinctur'd with this Liquor. And we find in *Propertius*, *Ostrina Tunica*. This kind of Shell-Fish doth abound most in *Africa*, in *Tyre* and *Sidon*; and *Tyrian Purple* is commended for the best.

The Tongue of the *Purple* Fish is about a Finger's Length, and is so sharp and hard, that it can easily pierce any sort of Shell-Fish. And from hence sprung the Proverb concerning Gluttons, who are said to be (*Purpura voraciores*) more devouring than the Purple. Their Voracity is the chief Cause of their being taken; for the Fishermen knowing the Purple to be greedy of Shell-Fish, they cast abundance of them

them into the Sea, in Weels or Bonnets for that Purpose, to which they fasten a long Rope; so that the *Purple* seeing its desir'd Prey, and thrusting its Tongue betwixt the Rushes of the Weel, pierceth the Fish, which consulting their Safety upon the sense of the Smart, do contract themselves, and by closing their Shells, hold it so fast, that the Purple is caught; which being ensnar'd after this manner, through its own Greediness, is an *Hieroglyphick* of a *Gormandizer* punish'd for his Gluttony; of whom you may see an elegant Emblem extant in *Alciat*: And the *Slanderer* is represented by the Picture of a Purple with its lolled-out Tongue, as *Pierius* notes in his 28th Book.

The *Tyrants*, by taking away the Shells of the greater Purples, do come at that noble Juice, which lurks in a white Vein in the midst of their Jaws. But the lesser Fry they dash once against a Stone, and so suddenly strike out their Purple Moisture; but if they do not kill at one Blow, in vain they strike a second Time; for the Blood, through the Pain, being diffus'd, and streaming through all Parts of the Body, will vanish and disappear. Hence *Virgil* tells us in the 9th of his *Aeneids*, that they breathe out their Purple Souls, who fall by the Anguish of a great Wound: In this Particular, copying *Homer*, who calls the Death of such, a Purple Death; and *Ælian* informs us, that the Purple was dispatch'd at one Blow, that so it might yield a better Tincture.

As for the Colour of this Juice, which *Pliny* affirms to be a duskyish Rosy, a clouded Flame (as it were) and *Plato*, a Redness, corrected and qualified with a pale white :) It is from the Fish

call'd Purple. And so is *Conchylum* and *Murex*, as we may see in *Virgil*,

---- *Tyrioque ardebat murice Lena, &c.*

"A Purple Scarf, with Gold embroider'd o'er,
" (Queen *Dido's* Gift) about his Waste he wore.

And *Juvenal* presents us with another Instance ---- *Horum ego non fugiam Conchyliis?* i. e. Shall I not avoid their luxurious Robes drunk with Purple and Tyrian Dye? Hence *Plautus* mentions *Conchyliata Tapetia*, so call'd from that Colour, which is a Compound, and a Mixture of blue and red, and resembles the azure of March Violets.

This Purple Colour is call'd in Latin, *Ostrinum*, and *Sarranus*: Hence we read in *Propertius*, of *Ostrinus Torus*, a Purple Bed; and *Virgil* in his *Georgicks* hath this Expression ---- *Sarrano dormiat Ostro*, i. e. Let him sleep in Tyrian Purple. For Tyre was call'd *Sarra*, from a certain Fish call'd *Sar*. And thus *Sidonius Apollinaris* calls a Palm-embroider'd Garment drunk with *Sarran*, i. e. Tyrian Juices, when it had imbib'd only the Tincture of this Purple Moisture.

C H A P. II.

Of Purple Ink.

THere was wont to be made of *Purple*, a certain kind of Ink, which was call'd *Encansum* (c). It was us'd only by the Emperors in subscribing their Patents and Letters, and was prohibited all others, under Pain of Treason; who, besides Confiscation of Goods, were capitally punish'd, as oft as they us'd it. This is
con-

confirm'd by *Nicetas*, who, in his First Book of the *Life of Manuel*, tells us, that in the beginning of his Empire, he wrote Letters to *Constantinople*, with the Blood of the Purple-Fish, and seal'd and secur'd with a red and golden colour'd Wax, and a silken String. And he tells us also, That *Sultan*, a Persian King, upbraided the Emperor of *Constantinople*, with his empty Promises of noble Presents (written in ruddy Characters) whereas he bestow'd but mean and slender ones. From whence 'tis evident, that the Emperor was wont to use no other Ink: But in case the Emperor was in his Minority, then his Governour was wont to write Letters with (d) a Green Colour, as the same *Nicetas* affirms of *Alexius Protosebastus*, who was Tutor or Guardian to *Alexius Comnenus*.

I am inform'd that your Highness hath an Edict of *Michael Paleologus*, subscribed with this kind of Ink; and being ask'd not long since what it was made of (which perhaps was not wholly this *Encaustum*) I answer'd that it was thus prepar'd: The Purple-shell of the Purple was beat to Powder, to which was added somewhat of its Colour boil'd out of it, and also melted together with it; and then the liquid Matter being thickned into a Consistence fit for writing, 'twas called *Encaustum*; as 'tis so express'd in a certain Law, which I believe is the only Law in the World, which both teacheth the making this *Encaustum*, and gives it a Name. From hence comes the Word *Inchiostro*, which we corruptly call *Ink*. (cc) And from hence was the Original of that *Encaustick* Picture mentioned by *Pliny*, *Lib. 35. Cap. 11.* which was wont to be made of this *Encaustum*; but I know not

whether any body else has given the same Interpretation. This kind of Ink, call'd *Encaustum*, is, together with Purple, grown quite out of Use.

The C O M M E N T A R Y.

(c) It is very well known that Princes were wont to subscribe their Letters and Edicts with their own Hands; so that *Leo* the Emperor ordained and decreed, that those only should be called Writs, which were subscribed by himself, and that with a peculiar kind of Ink made of the Purple reduc'd to Powder. He forbade all Inscriptions on sacred Edicts, but those of *Purple*, and commanded them all to be sign'd with that Colour, which he made unlawful for any private Person to use. From whence tis apparent, that all Imperial Writs were wont to be written in *Vermilion* and *Purple* Characters; and that because they could not be easily counterfeited, and because Princes must do things after a more pompous Manner than inferiour Persons.

Besides these Examples mentioned by *Pancirollus*, *Constantinus Manasses* gives in his Annals other Instances of Emperors of *Constantinople*, who subscribed their Names in *Vermilion* in any Papers that were presented to them, and afterwards did authenticate and confirm the writing in *Purple* Characters. And another Author affirms, that he saw a certain Patent written with this *Purple Encaustum*, which at several Positions would represent the Appearance of various Colours, as of red, black, golden, and the like, according as the Instrument was mov'd and turn'd. And we read that *Paleologus*,
Em-

Sect. I. Of Purple Ink. 9

Emperor of *Constantinople*, left at *Rome* an Obligation or Bond, written with the Blood or Juice of the Purple.

(cc) [*From this Encaustum, the Picture so call'd, mentioned in Pliny, receiv'd its Name.*]

Pamphilus, *Apelles* his Master, is said to have been the first that taught the Art of making this Picture, which was first made in Wax Tables, or Ivory made hollow, or engraven. Afterwards it was cover'd with Hair or Bristles, spread upon the Tables, and then burnt with the Coals of Galls (and then with clean Linen, so that it had a Gloss, and would shine like Marble) which Picture, drawn on Ships, will never be deaced by the Injuries either of Sun or Wind. Hence he is called *Encaustes*, who is drawn in burnt Colours. *Martial* hath an Epigram to this Purpose.

Encaustes Phaeton tabula tibi pictus in hac est.

Quid tibi vis? Dipyron qui Phaetonta facis.

As if he should have said, The Painters did ill in burning *Phaeton*, who was burnt before.

(d) [*Green-Characters.*]

Nicetas, in his seventh Book of the Life of *Alexius Comnenus*, tells us, that *Alexius Sebastocrator*, the Son of *Manuel*, desiring the Empire, had obtained an Edict containing those Things, which the Emperor (*viz. Comnenus*) had subscribed to with his own Hand, and that they could not be ratify'd and confirm'd, before *Alexius Comnenus* had seen them, and subscribed in Green Colour these Words [*Rata sunt.*]

C H A P. III.

Of Obsidian Stones or Jet.

(e) *Obsidian* Stones are black, but very shining. Looking-Glasses are wont to be made of them. They are found on the Coasts of *Arabia Felix*. There are now none to be had, whatever the *East-Indian* Merchants boast of their finding them. *Pliny* tells us, that many of these *Obsidians* are wont to be inserted like Precious-Stones into Rings, and that in one of them was cut the intire Image of *Augustus*, who being much delighted and taken with these Stones, caus'd four Elephants to be made of them.

The COMMENTARY.

(e) These Stones have their Name from one *Obsidius*, who first found them in *Æthiopia*. They are very black, and sometimes transparent, but they look a little dull, and represent only the Shadow for the Picture. There is a Sort of Glass also of the same Colour call'd *Obsidian*, from these Stones, of which you may see more in *Pliny*, in the 26th Chapter of his 36th Book; from whence it appears, that there is a sort of natural *Obsidian* Glass, which is rather to be rank'd among Stones, than Metals; for 'tis as passive as the former, enduring the graving Tool, and receiving Images, and is diaphanous or pellucid, transmitting (like Glass) all Forms and Shapes. 'Tis generated in *Æthiopia*, of which the Sepulchres of the Nobility are usually made after this Manner; They take a great Piece of it, and make it hollow;

SECT. I. *Unquenchable Flax.* 11

and in that Cavity include the Corps, where 'tis not only preserv'd, but (as if entomb'd in Glafs) may be apparently seen, neither doth it send forth any ungrateful Scent.

CHAP. IV.

Of Asbestine, or Unquenchable-Flax.

THERE was anciently a certain kind of *Flaxen* Substance, which the *Greeks* called (f) *Asbestin*, i. e. inextinguishable; and the *Latines*, *Linum vivum*, live Flax. Whole Webs and Coats are wont to be made of it, which were so far from being consum'd by Fire, that being refin'd from their Dross, they were cleans'd and purify'd into a greater Lustre, than if they had been wash'd with Water.--The Corps of Kings were usually burnt in those Kind of Coats, lest their Royal Ashes should be prophanelly blended with common Dust. *Pliny* tells us, that this kind of Flax, the best that is to be found in the whole World, is hard to come by, and not easily weav'd, by reason of its shortness: But when once it is found, it equals the Value of the most precious Jewels. 'Tis reported, That *Nero* had a Napkin or Towel made of it. 'Tis no where to be had now.

The COMMENTARY.

(f) That this unquenchable Flax, or Cloth made of it, will not be consum'd, but cleansed by Fire, *Pliny* proves at large in the First Chapter of his Nineteenth Book.

Agreeable whereunto is that which *Strabo* relates of *Linum Creticum*, which he tells us, is a Stone; which being ground to Powder, and sifted and rid of its terrene Matter, its remanent stringy Substance may be so comb'd and teaz'd, as to be weav'd into a Web, which being thrown into the Flames, will not be consum'd, but be only cleans'd from its Dregs and Corruption.

Podocattarus, a *Cyprian* Knight, who publish'd the History of that Isle in the Year 1566. shew'd some *Cyprian* Flax, which he had at *Venice*, which being cast into the Fire, he receiv'd again, only refin'd by the Flames, being altogether invulnerable, even in the midst of the Embraces of that devouring Element. But this is the greatest Wonder of all, that these kind of Contextures are not made of Vegetables, but of the Stone *Amiantus*, generated in the Isle of *Cyprus*; which being beaten to Powder, and refin'd from its gross and earthy Matter, its thready Substance may be weav'd into a Web, which cast into the Fire, is not consumed, but (Salamander like) remains inviolable in the midst of Fire.

The Emperor *Constantine* order'd an incombustible Sort of Linen to be made of this Stone, that might always burn in his Lamps, which were in his Baths at *Rome*. And *Ludovicus Vives* (in his *Scholia* on *St. Austin de civitate Dei*) tells us, That he saw several Lamps at *Paris*, which would never be consum'd. And at a Feast at *Louvain*, there was a Napkin thrown into Fire, which was restor'd to the Owner, cleaner and brighter, than if it had been rins'd in Water, or lather'd with a Wash-ball.

At *Heidelberg* in the Prince *Palatine's* Closet, a late Traveller tells us, That he saw a Purse made of *Alumen Plumosum*, cast into a Pan of burning Coals, till it was thoroughly ignited; and when taken out and cool, he could not perceive that it had received any Harm by the Fire. Not much unlike this is that Stone, generated at *Carystum* (one of the *Cyclades*) which the Inhabitants do comb, spin, and weave, and of which they make Towels and Napkins, which, when they are foul, they cleanse and wash them (as it were) with Fire.

C H A P. V.

Of Silken Flax call'd Byffus.

(f) *BRSSUS* was a fine sort of Flax, which grew in *Greece*, of which choice Gariments were wont to be made; it was of so great a Value, that the third Part of a Dram was exchange'd for four *Denarii*, i. e. for half a Crown of our *English* Money: But it's utterly unknown at this Day, and so is a certain kind of Linen call'd (ff) *Carbasus*, which is usually brought out of the *Indies*, as may be gathered from *Martianus* the Lawyer, and from the Sixth Book of *Virgil's Aeneids*,

----- *Cui tenuis glauco velabat amictu*
Carbasus -----

“ An Azure Robe was o'er his Body spread.

The C O M M E N T A R Y.

(f) Next to inextinguishable, in worth and esteem, is that precious kind of Flax call'd *Byffus*, which was wont to grow about *Elis*:

Achaia

Achaia, and was agreeable to the Delicacy and Fineness of the softer Sex.

Isidorus affirms it to be very white and soft, and some think it to be that delicate Down, and woolly Substance, which sticks to a certain kind of Shell-fish call'd *Pina*, and is of a dirty Colour, whence are made a sort of Garments call'd *Byssine*, of that most curious and delicate Wooll, which is of a clayish Colour inclining to black, but as bright as Gold.

Pliny mentions another Sort of *Linous* Substance, which he calls in the First Chapter of his Nineteenth Book, ξύλον, Wood; and *Ulpian* ἐπίξυλον, i. e. because it grows on the Apple of a certain *Arabian* Shrub, and is kemb'd and teaz'd by the Inhabitants like Wooll. This Shrub bears Fruit like a *Malacotoon*, and is so call'd by some. The Linen made of this Matter, is very erroneously and falsely call'd *Silken*, whereas according to *Pliny* and *Perozus*, it should rather be call'd *Cotton*.

There is no kind of Flax more white and soft; and therefore *Pliny* tells us, That Garments made of them were very acceptable to the *Egyptian* Priests, which *Beroaldus* understands, not only of their common and ordinary Cloaths, but of their sacred Habilitments in their holy Ministrations; and tells us withal, that *Orpheus* and *Pythagoras*, and the Discipline of the *Egyptians*, held woollen Vestments to be unteemly and profane in Divine Matters, because Wooll is the Product of an Animal; but linen Habilitments they thought Pure and Sacred, because Flax is the Fruit of the Earth, all whose Offspring is reputed clean; and therefore, the
Priests

Priests of *Isis* being clad in Linen, are styl'd *Linigeri* commonly by the Poets. So sings *Ovid*.

Nunc Dea linigerâ colitur celeberrima turba. Ov.
Linigeri fugiunt calvi, sistrataque turba. Mart.
Cui grege linigero circumdatus & grege calvo. Juv.

--- Attended by his Choir in white,
 The Bald-pate Tribe runs madding thro' the
 Street.

(ff) [*A certain kind of Flax call'd Carbasus.*]

Pliny tells us, That 'tis very thin and fine; and *Pausanias*, that 'tis incombustible. Hence Garments and Linen made of this Substance, are call'd *Carbasæ* and *Carbasina*; and because this Latter is of a wonderful Tenuity mov'd with the least puff of Wind, it was easily crowded into very small Folds, which *Maro* in his Eleventh Book calls *Carbasæos*.

---- *Croceam chlamydemque sinusque crepantes,*
Carbasæos fulvo in nodum collegerat auro,
Pictus acn tunicas, & barbara tegmina crurum.
 Goldweav'd with Linen on his Thighs he wore,
 With Flowers of Needle-work distinguish'd o're,
 With golden Buckles bound and gather'd up
 before.

Because the Sails of Ships were made of this Stuff first found in *Spain* (as *Pliny* relates) therefore are they call'd *Carbasæ*.

C H A P. VI.

Of *Specular Stones*.

(g) *Specular Stones* were a shining kind of Substance, and (according to *Basil*)
 trans-

transparent like the Air. the Ancients made Windows of them, as we do of Glass. *Pliny* mentions them in his 36th Book, and 22d Chapter, and so do Civilians.

Nero built the Temple of *Fortune* with these Stones, wherein whosoever was shut, might easily be seen without, and (as *Pliny* writes) the Gates being shut, the Light seem'd included within, rather than transmitted from without. These *Speculars* are now no where to be found.

I had a Chrystal presented me, not unlike these Stones, but two Fingers thick, so transparent that you would think you saw nothing but the Air. It had a Water-Snake within it, gaping as if about to devour a young Lamb, which oppos'd it with a Cross. 'Twas very exactly done. I had it from *Martin Gerßman* afterward Bishop of *Breslaw*.

THE COMMENTARY.

(*g*) *Pliny* (in the 22d Chapter of his 36th Book) tells us (according to some) that a *Specular Stone* is a certain kind of Juice, or Humour of the Earth congeal'd like Chrystal, and hardened into a Stone, and is pellucid like Glass, and may be easily cleft. It is of a most transparent Purity, if it be genuine and sincere; and if no Way sullied, and without a Flaw, it nearly resembles the Air in Lucidity.

From this they were call'd *Speculars*, letting in the Sun and Light into Houses, as Glass and Paper do now among us. They were so call'd, because they were made of this Stone, and set in the Windows; but that in such a Manner, that they might be remov'd at Pleasure.

They were put to several Uses ; sometimes Part of the House, and sometimes their Walks in the Garden were covered with them, and all for the Advancement of Luxury and Pleasure. ---- Such perhaps was that *Specular Chamber* of *Horace* , wherein his Curtezans were so disposed, that where ever he look'd, the very Act of Generation was represented to him.

Pliny tells us in his Epistles, that the Parlours where they supp'd, were excellent Harbours against Storms, and Tempests, in regard they were so fortify'd with these *Speculars* against all Violence and Injuries of the Weather, if you will believe the Distick of witty *Martial*,

*Hibernis objecta notis specularia puros
Admittunt soles, & sine sole dies.*

It will not be impertinent to mention here, the *Lapis Phosphorus*, or the *Bononian Stone*, which if expos'd a while to the illuminated Air, will imbibe the Light, so that withdrawn into a dark Room, and there look'd upon, it will appear like a *Burning Coal*, but in a short Time gradually loseth its shining, till again expos'd to the Light. The Chymist who shew'd it my Friend at *Bologne*, told him it acquir'd this Quality by being calcin'd in a small Furnace, laying the Pieces of Stone upon an Iron Grate over a Fire of Wood : But there is something more of Mystery in it ; for he try'd it, and it would not shine.

C H A P. VII.

Of Murrhine.

(b) *Murrhinum* was a kind of white Substance, speckled with Purple Spots. It was found in the Earth, and was supposed to be a Juice or Humour condens'd there by Heat. It was not diaphanous, but was clear and bright, odoriferous and fragrant; of which Vessels were made very convenient to eat and to drink in. It was very much esteem'd for the variety of Colours wherewith 'twas adorned, as White, and Cinnamon, and Violet, and the like.

Pompey the Great, after his Triumph over *Asia* and *Pontus*, brought Cups from thence, and a Pair of Tables made of two Gems, three Foot broad and four Foot long, which would open and shut, and also Dice and Men of the same precious Materials.

But now a-days, neither is this thing call'd *Myrrhinum*, nor those remarkable Jewels to be found any where; (i) nor any Pearls like *Cleopatra's* which could not be match'd by any in the World. She valued them at 20000 *Sestertia*, which amount to 500000 Crowns.

The C O M M E N T A R Y.

(b) *Murrhine*, Vessels had their Name from the Gem call'd *Murrha*, which *Pliny* in the 2d Chapter of his 37th Book, affirms to be an Humour condens'd by Heat in the Earth, which was shining, but faintly, and had rather a *Brightness*, than a Splendor. 'Twas the Variety of its Colours that made it so valuable, its

spots moving themselves into a Purple, Red, and a Third Colour, the Result of them is Vessels made of it are call'd by *Propertius*, *rhea*, --- *Murrheaque in Parthis Pocula cocta* in which Verse he seems to think them so, because he saith, they were harden'd bak'd in *Parthian* Chimnies; from which it differs, who holds it to be an Humour condensed by Heat, and a Stone (as it were) hewn and carv'd into Vessels, which *Papin* simply calls *Murrhas*; and so doth *Martial* in 4th Book,

*Si calidum potas, ardenti Murrha Falerno
Convenit, & melior sit sapor ille mero.*

in which Distich the Poet facetiously tells us, in way of Jest; that the Wine may grow red, from the Colour of the Murrhine Cup, whose Spots are (as it were) inflam'd and kindled by the Purple Hue; he promiseth from hence, also a better Taste, in regard the Odour of Murrhine was a commendable Smell.

But this Difference may be easily reconcil'd, if we say with *Scaliger*, that the Word [*Murrha*] was anciently used for a Gem; and doubtless the first Part of that Versicle, --- *Et gemmas* & *sarrano dormiat ostro*, is to be understood of this *Myrrha* we are speaking of.

(i) [*Nor any Pearls like Cleopatra's.*] *Cleopatra* told *Mark Antony*, that she had at one Supper an hundred *Sefterces*; which he thinking impossible, she made next day (Wagers being laid) a most sumptuous entertainment; which when he derided, and desired an Account of the Cost and Charge, She

She made answer, that that was but the *alias*, or a Trifle by the By, and told him withal, that she would spend and consume as much as she had promised, and therefore immediately commanded the second Course to be brought in. And when the Servitors by her Order, had set before her but one Sawcer of Vinegar, *Mark Anthony* observing, and looking what she would do, she took a Pearl from her Ear, and plung'd it into the Vessel, which being presently melted (for Vinegar will dissolve with its Acrimony Margarites and Jewels) she drinks up at a Draught; she laid hold on another, intending to take it off, as she had done the Former; But *Lucius Plancus* (Umpire of the Wager) would not suffer her. The Pearl that was left, was cut in two, and was hung at the Ears of *Venus* in the *Pantheon* at *Rome*.

C H A P. VIII.

Of Aurichalcum.

(k) *Aurichalcum* was a sort of Brass resembling Gold, and of which were made those sort of carv'd Works, which the Ancients supposed to be of *Corinthian* Brass, but falsely; for *Corinthian* was a Mixture of Brass, and Gold; but those *Toreumata* being melted, had nothing of Gold or Silver in them; and therefore I believe they were made of *Aurichalcum*.

Pliny tells us, in the 2d Chapter of his 34 Book, that this kind of Metal hath not been in Being for a long Time, by reason of the Barrenness of the feeble Earth. But 'tis clear
and

and manifest that *Martianus* the Lawyer (who flourisht in the Time of *Alexander Severus* the Emperor in the Year 225) made mention of it, as if it had been to be found in his Days.

That *Latton* or *Aurichalcum* now in Use, is not right *Aurichalcum*, but Brass, which sprinkled with some Powders, doth usurp its Splendour; as we shall observe hereafter.

The COMMENTARY.

(1) That which the *Greeks* call *ὀψίχαλκος*, many in *Latin* call *Aurichalcum*, which is a mongrel Word derived from both those Languages, supposing it to be a compound of Gold and Brass. That there may be such a Thing even *Scaliger* himself denies not, but he saith, 'tis not this *ὀψίχαλκος* of which we speak.

Some therefore think that the Word may better have its Original from *ὄρος*, which signifies a *Mountain*, and *χαλκός*, which signifies *Brass*; so that it is a kind of mountainous Metal, dug out of Hills, and not a Mixture of Gold and Brass, but only meer Brass, which had the Colour of Gold, and did somewhat resemble it.

'Twas of so great Value among the Ancients, that though it was no where to be had, yet (as if it were in being) it was accounted more precious than Gold.

Pliny tells us in the third and sixth Chapters of his 23d Book, how to gild or adulterate Brass, so as to make it look like Gold, which was done after this manner. They made the Brass red hot, and then quench'd it in Vinegar and *Alum*; afterward, they spread it with thin
Leaf-

Leaf-Gold, which the prepar'd Brass receives in such manner, that they most closely unite & stick together: And lastly, if the Brass chanceth to look pale, under the Leaf-Gold, they smite it over with the *Telk* of an Egg, which taketh away the Colours of the Brass.

C H A P. IX.

Of Cinnamon.

(1) *Galien* informs us in his First Book of *Medicines*, that *Cinnamon* is very rarely to be found, unless in the Cabinets of Princes. *Pliny* tells us, that a Pound of it was worth a thousand *Denarii*, and also that its Price increas'd, after the burning of the Woods of *Arabia* and *India*.

But that *Cassia*, which the Latins call *Cassia*, woody, is liken'd to the worst *Cinnamon* and is call'd by the Italians, *Canella*.

We have no Knowledge of *true Cinnamon* nor yet of the *Xyle-Cinnamon*, which is only the *Wood* of the Tree, but the *Cinnamon* is the outward *Bark* of it.

The C O M M E N T A R Y.

(1) *Pliny*, in the 19th Chapter of his 16th Book, hath a large Description of *Cinnamon* which *Solinus* having abridg'd, tells us, That it is a short, low Shrub, not above 2 Ells high, and that the *slenderer* it is, it is the more esteemed, and that the more *thick* and *bulky* is of a lower Account.

Monsieur Thevenot says, that the Tree (of which they have this *Bark*) is strait, and pr

like to the *Olive-Tree*; that it bears a white Flower of an excellent Scent, and the Fruit of it is round; that they take off the Bark in the Summer time, and that when they cut it, the Smell is so strong, that the Soldiers (who are to guard the same) fall almost sick upon it.

Linschoten tells us, that the Cinnamon-Trees spring up of themselves, without planting in the open Fields, like *Bushes*; that the Tree from whence the Bark is taken, they let stand, and within three Years after, it hath another Bark, as it had before.

Solomon mentions it in the 17th Verse of the 7th Chap. of his *Proverbs*; *I have perfumed my Bed with Myrrh, Aloes and Cinnamon.* *Martianus* the Lawyer observes out of *Pliny* and *Dioscorides*, that the prime *Virtue* of this Shrub is in its Bark or Rind. There is an Ointment made of it, call'd *Cinnaminum*, which of all Unguents is the most crasse and thickest.

A Modern Traveller (*Mr. Ovington*) in his Voyage to *Surat*, tells us, that *Ceylon* is the chief Place for Cinnamon, and that 'tis cut off from a Tree cloath'd with three Barks, two whereof are strip'd off, which are the Cinnamon; the third and most inward, which incloseth the Body of the Tree, is never touch'd, because an Incision in it kills the Tree. After three Years time, the extreme Barks are renew'd, and cover the Body of the Tree again, and are fit to be pull'd off.

As for the Place of its Growth, it formerly flourish'd in such great Plenty in *Ethiopia*, that we find the Southern Part of it was call'd by *Ptolemy* the Geographer, *Regio Cinnamomifera*, from the Great Quantity of that Spice, which then

then grew there; though now there is not Tree of it to be found in all this Country, the *Portuguese*, who have narrowly look'd for it do affirm. It comes now from the Island of *Ceylon*, which produceth the best.

[*Very rarely to be found, unless in the Cabinets of Princes.*]

Cinnamon was so scarce in *Galen's* Time, that he says (*Lib. 1. de Antid.*) no Man had any but the Emperor. But *Scaliger* is of Opinion, that the Cinnamon, which we now use, is very different from what was in *Galen's* Days.

[*But that Cassia, which the Latins call Lignea, &c*

There is a great Dispute concerning the Difference between *Cassia Lignea* and Cinnamon. Some say they are both one, differing only in Names; others, that they are the same, but differ only in Place; others, that they come both off the same Tree, and so call the outward thickest Bark, *Cassia Lignea*, the inward thin Bark, the Cinnamon: Others say, that they come off different Trees, that are very like; so that the *Cassia* may be made a Cinnamon-Tree by Transplantation. But doubtless, the *Shop Cinnamon*, or *Canella*, is the true *Cassia* of the Ancients; and if we must distinguish, you may call the thicker Bark, *Cassia*, and the thinner Cinnamon.

CHAP. X.

Of the Indian Leaf, call'd Folium Barbaricum, and of other Perfumes.

Among many Kinds of choice and precious Spices, brought from the *Indies* to *Alexandria*

andria, *Martianus* the Lawyer makes mention of this Leaf. It was a certain Perfume, from a very sweet Root (call'd *Bacchar*) and a Compound also of *Spikenard*, *Myrrh*, *Balsam* and *Costus* (call'd *Herba Maria*) and other Vegetables; of which, see *Pliny*, in the 6th Chap. of his 21st Book, where are mentioned many other Odours; which because they have now no being in Nature, I therefore omit them, and for brevities sake shall pass them by. I have named only this, because the chiefest and most eminent of all; which being brought from the *Indies*, is therefore called *Barbaricum*, Barbarous.

The C O M M E N T A R Y.

Martianus the Civilian, makes mention of this Indian Leaf, in his Book *De Publicanis & Vectigalibus*.

C H A P. XI.

Of Amomum, Costus, Malobathrum, Cassia odorata, the Indian Perfume and Laser.

(m) THE Herbs *Amomum* and *Costus*, were most fragrant and noble Plants, of which, formerly were made most precious Perfumes of very great Value. They are not to be had now a days; but Perfumers and Apothecaries use others in their stead, viz. *Pseudocostus*, i. e. False and counterfeit. Of these two Plants, were made a Perfume call'd *Costamomum*, which was brought also from the *East-Indies*. *Martianus*

C

men-

mentions it as a most precious Thing; but it also is quite lost.

And so is also the Herb (n) *Malobathrum* and fragrant *Cassia*, which some suppose to be Spikenard. These Plants were exceeding fragrant, out of which was squeez'd a most sweet Oil.

Martianus also in the afore-cited Place, speaks of *Malobathrum*, to which he adds the Indian Perfume, which was a most odoriferous Fro issuing from Indian Canes.

He mentions also *Lasfer*, which was a sweet Juice or Gum, proceeding from a Plant called *Lasferpitium*, of which *Pliny* discourseth in the 3d Chap. of his 19th Book.

The C O M M E N T A R Y.

(n) *Martianus* makes mention of all the Herbs, whose Natures, Virtues and Properties 'tis worth our while to understand from *Pliny* and *Dioscorides*.

However, in the *Interim*, we may observe thus much of *Perfumes* in general, that the Ancients, who were nicely studious of Neatness in Attire, and Curiosity of Dress, were wont to bathe their Heads in fragrant Ointments, made of boil'd Perfumes, as *Pomponius* tells us. Here *Lucretius* calls them,

----- *Mixtos in corpore Odores,*

Concoctosque -----

“ Behold sweet Odours mix'd i'th Body dwell

“ And boil'd Perfumes breathe forth a fragrant Smell.

They were wont to be foddren in leaden Vessels in the Shade, as *Pliny* informs, in the

2d Chap. of his 13th Book; and we read in *Seneca's* 90th Epistle of the Shops of those that boil'd Odours. To which is pertinent that of *Horace*.

*Quis multa gracilis te Puer in rosa,
Persusus liquidis urget Odoribus?*

"What slender Youth in Rose-buds, all Perfume,
"Invites thee to his eager Arms to come?

Some understand these Odours of certain Ointments, that are great *Provocatives*, and take away that filthy *Haut-gout*, which streams from the Body, wherewith not only Limbs of Strumpets, but their Beds also were wont to be sinea'd, according to that of *Catullus*.

----- *Cubile clamat*

Sertis, & Tyrio fragrans odore.

"The Bed is crown'd with Garlands sweet,
"And Tyrian Odours in the Nostrils meet.

Hence those Phrases are frequent in the Poets, to bathe, anoint, perfume, and wash the Head and Body in liquid and flowing Ointments (*n*). *Horace*, in the 7th Ode of his 2d Book, expressly mentions this Indian Leaf.

----- *Coronatus nitentes*

Malabathro Tyrio Capillos

"My Head with Garlands crown'd
"Of Indian Leaf -----

They were styl'd dry Ointments by *Pliny*, which were made of drying Perfumes, and were call'd *Diapasmata*, which was a great Enemy to that *fetid* Smell, breath'd from the Pores of a *nasty* Body. Hence they were wont to apply it

to the Groin, Armpits, and other Parts of those Goatish Persons that smell so rank.

The manner of using Unguents, was brought from Greece to Rome, whose Luxury was so extravagant in a short time, that πὸ χάρμα, i. e. An Ointment made of Wax was dissolved in Oil, and which supplied their Athlete, was sold at the Price of 800 Sesterces, which is above six Pounds of our Money.

As to smell sweet is the Property of a soft and delicate Man, so to stink like a Goat, is the Trick of a nasty and filthy Beast; such a one as *Mævius* was, whose Rankness is recorded by *Horace*.

----- *Gravis hirsutis cubat Hircus in alis.*

“ A Rammish Stench his Arm-pits do exhale.

Of the Author, Causes, Goodness, &c. and also of the Manner of making Ointments, you may read in *Athenaus*, in the 14th Chap. of his 3d Book.

Besides these Dry ones, they had (doubtless) their liquid Ointments too, which they mingled both with their Wine and Viands; wherewith they did not only moisten their Pates, but their Whistles too; so that they drank, and tippled them with the greatest Luxury.

Pliny is of Opinion, that OINTMENTS were used long before the Battel of TROY; for *Jacob* sent some to his Son *Joseph* in Egypt: And *Moses*, who was 350 Years before the Siege of that City, makes mention of Ointments about the Sanctification of the Tabernacle, and the Priests of the Old Temple. *Pliny* and *Solinus* report, that *Alexander*, when he conquer'd *Darius's* Army, found among other Jewels and Spoils,

Spoils, and other valuable Things, a Casket of Unguents, which he highly esteem'd. But *Herodotus* affirms, that they were frequently us'd before *Darius's* Time; for *Cambyfes* sent Embassadors to *Aethiopus*, King of the *Macrobian*s, with great Presents, one wherof was a Box of Ointments.

It is not certain when they were first used in *Rome*; but we find in *Pliny*. (*Anno* 565. *U. Cond.*) *Antiochus* being vanquish'd, *Pub. Licinius Crassus*, and *Julius Caesar*, then Censors, commanded that no foreign or strange Infection of Ointments should be sold in the City.

C. H. A. P. XII.

Of Myrrh, Staete, Bdellium and Balsamum.

(o) *Myrrh*, is a Drop or Tear, distill'd from a Tree in *Arabia Felix*, so call'd, because productive of every thing that is odorous.

(p) *Staete* is extracted from *Myrrh*, which yields a more precious kind of Liquor.

(q) *Bdellium*, also is a Tear, dropping from a certain Tree that grows in *Bactria*.

(r) *Balsamum* (a Thing more famous than truly known) is the Juice of a certain Vegetable (like a Vine) that grows in *Judaea*, in the Valley of *Fericho*.

These kind of Plants are not now to be had, but only the Counterfeit. 'Tis said that the *Turks* have found in *Egypt* some of them, from which they yearly receiv'd some few Drops,

otherwise they are not to be found in any Part of the World besides. For when the *Mabometans* (Enemies to all Order and Neatness) had destroyed all the Vineyards in (s) *Jericho*, 'tis no Solœcism to think that this kind of Plant hath no Existence, and consequently that there is no such Thing as *Balsam* in being, nor brought into *Europe*; or if there is, 'tis so little, that 'tis as good as none.

The C O M M E N T A R Y.

(o) The best *Myrrh* is produc'd in *Arabia*; before it is cut, or suffers an Incision, it sweats forth Drops of Moisture, call'd (p) *Stacte*, from the Greek Word *σάκω*, to distil, which denotes a Drop of Liquor, wherewith they were wont, out of Wantonness, and for their Pleasure, to anoint their Hair, according to that of *Ovid*.

Non Arabum noster rore capillus olet.

“ Arabian Dew doth not besmear

“ The Locks of our neglected Hair.

By which he means, *Arabian Myrrh*, a Drop or the *Stacte* whereof did bedew the Hair, tho *Stacte* relates not only to *Myrrh*, but to other Juices and Tears distilling from Trees, as *Rhodoginus* observes in the 27th Chap. of the 24th Book of his Antiquities.

(q) [*Bdellium and Balsam.*]

Of *Bdellium*, you may read in the 10th Chap. of the 12th Book of *Pliny*, and concerning (r) *Balsamum*, in the 25th Chap. of the same Author.

'Tis a Shrub, formerly growing but in one Part of *Judea*, and only in two Gardens there,
and

and resembles rather a Vine than a Myrtle.
 'Tis set in Stalks or Twigs like Vines, and o'er-
 spreads the Hills as they do, supporting it self
 without any other Assistance: It bears within
 three Years, and never shoots up above two
 Cubits; 'tis the Prime and Chief of all other
 Ointments. The Juice of it is called *Opobalsamum*,
 and *Xylo-Balsamum*, which *Juvenal* men-
 tions in one of his Satyrs.

----- *Hirsuto spirant Opobalsama collo.*

“ ----- What Perfume strikes the Air;

“ From your most rev'rend Neck o'ergrown
 with Hair.

Xylo-Balsamum, is the Wood or Sprigs
 of the Balsam-Tree, which are foisted into
 Shops in the room, and instead of the Juice it
 self. The greatest Indication of the Genuineness
 of it, is the curdling of it, and the leaving no
 Stains and Spots in Garments.

The manner of drawing this Juice, call'd
Opobalsam, or this Gum of the Balsam-Tree, ac-
 cording to *Theophrastus* and *Dioscorides*, is as fol-
 lows.

They cut and wound the Tree with iron
 Hooks, which *Claudian* hints in the *Epithalamium*
 of *Palladius*.

*Gemmatis alii per totam Balsama reftum,
 Effudere cadis, duro qua saucius ungue,
 Niliacus pingui defudat vulnere cortex.*

Though *Pliny* and *Tacitus* will have its Veins
 to be open'd with Glass, Stone, or Knives of
 Bone, in regard (as they say) this Tree will be
 afraid, nay, will dye, at the Violence and Force
 of Iron.

Strabo tells us in his Geography, that *Balsam* was only to be had in *Judea*, and the Word indeed suggests as much in Arabick, *Balsamin*, i. e. the Prime and Chief of Oils, it being stil'd in *Exodus*, the best of Spices, Chap. 30. 23.

Justin tells us in the 36th Book, that the Wealth and Riches of the Jewish Nation, did arise from an Impost laid on *Balsam*, which only grows in that Country. (1) There is a Valley call'd *Fericho*, of 200 Acres, wherein there is a Wood as fruitful as pleasant, set with a Mixture of Palms and *Balsam*; the Trees whereof resemble Fir, only they are lower, and are dress'd like Vines, and at a certain Season they sweat *Balsam*.

C H A P. XIII.

Of Indian Iron, call'd *Azzalum*.

(1) **T**Here was formerly *Azzalum*, a certain Kind of Iron call'd *Indian*, though really and in Truth, it was the Product of the Country of *Ceres*, which we now call *China*. It was the noblest of all sorts of Iron, which *Pliny* mentions in the 14th Chap. of his 34th Book; and so doth *Martianus* in the afore-cited Place. When made into Tools, it had so good an Edge, and was of so firm a Temper, that it would cut through any Iron. It is not to be had now a days, but was very much esteem'd when it was in Being.

The C O M M E N T A R Y.

(1) I suppose 'tis *Indian Azzalum*, which *Marcellinus* calls *Indian Iron*. *Pliny* styles it in the
the

the Place afore-cited, *Ferrum Sericum*, and prefers it above all kinds of Metals.

Touching the Use of Iron in general, 'tis a thing exceeding necessary in *taming* and subduing the Obstinacy of Matter, which otherwise would remain *intractable* and stubborn in the Hands of Artificers. All Arts by this are enabled to perform their several Operations; from whence their Instruments have some *Hardness* to engrave, others *Solidity* to knock, and the rest some other Faculties for their several Functions. With Iron we rip up the Bowels of the Earth, and with Iron we set its Surface with Trees; by the help of Iron we plant Orchards, and retrieve the Youth of decaying Vineyards: By vertue of this Metal, we erect Fabricks, polish Stone, and make it subservient to a thousand other Occasions.

But the *Abuse* of this Mineral is as pernicious and *fatal*, as its right Use is *beneficial*; for it assists in Wars, Thefts and Murders, and that not only near at hand, when *brandish'd* with our Arms, but afar off, and at a distance, when *breath'd* from a Cannon; nay, that Death might attack us with greater speed, we hasten its Flight with iron Wings. Before the Use of Iron, Fists and Feet, Teeth and Battons (as *Lucretius* tells us in his fifth Book) were the only Instruments of War, *Vulcan* having not forg'd any other Weapons.

Brass anciently supply'd the room of *Iron*, especially in the Days and Times of *Heroes*, wherein (as *Hesiod* tells us) Iron was not in use. And so is that of *Virgil* to be understood. ---- *Telis, & luce coruscus Athens*, i. e. did glitter in *Brass* Armour. *Ammianus Marcellinus* saith, Iron was

first dug out of the Earth by the *Chalybes*, a People near *Pontus*: But *Diodorus* affirms, that the *Dactyli*, i. e. *Cybele's* Priests, did first forge it, being taught that Art by the Mother of the Gods. *Theodorus Samius* is reported to be the first that melted it, and made Statues of it, as *Celins Rhodoginus*, in the 5th Chap. of the 18th Book of his Antiquities informs us.

The sacred Pages (*Gen. 4.*) make *Tubal-Cain* to be the Author of Iron Manufactures. It is not always melted like Brass, which will flow and run, but sometimes it *softens*, as *Virgil* tells us in the 8th of his *Æneids*.

Vulnificusque Chalybs vasta Fornace liquefcit.

" A Flood of deadly Steel in the large Furnace flows.

And 'tis to be observ'd, that they that would mollify it, do dip it into Oil, but those that would harden it, plunge it into Water.

C H A P. XIV. Of Ammoniack Salt.

M *Arbiolus* conceives (u) *Ammoniack Salt*, which was dug in (w) *Cyrene* (a Province of *Lybia*) to be utterly lost, and not at all now to exist in Nature. That which your Apothecaries do expose and shew us, is *fictitious* and counterfeit.

The C O M M E N T A R Y.

(u) *Ammoniack Salt*, according to *Pliny* and *Dioscorides*, is a Saltness of the Earth, which & the Moon's Increase, boils up in the Sands of *Lybia*.

Lybia, not much unlike a *Fissile* kind of *Allum*, call'd [*Schiston*.]

It lies in long strait Veins, but not clear and pellucid; 'tis ungrateful to the Taste, but useful in Physick. (w) 'Tis chiefly to be found in that Part of *Cyrene* which is near to the Temple of *Jupiter Hammon*, from whence it had its Name, though it may be so called from the Lands wherein 'tis found, which the Greeks call *Αμυρ*.

C H A P. XV.

Of Marbles.

x) I Am persuaded, that at this very Day there are to be found Veins of the most noble sorts of *Marble*, as *Porphyry*, (y) *Ophites*, *Barard Serpentine*, *Parian*, *Gracian*, and others of a most excellent Nature.

But because those Veins are in the Possession of the Turks, *Serpentine*, and the others that we have, must needs be very ancient, being found in old ruinous Buildings, and of so great a hardness, as not to be cut or engraven. They have contracted their *Hardness* from their long duration; for they were not so hard at first as not to yield to the Chisel, and admit of Sculpture.

Those Marbles therefore may seem utterly lost, in regard there are no Veins of them open now. It is manifest that a great Part of them was cut in the Island *Paros*. The whitest *Parian Marble* is to be found in *Carysus*, *Domya*, *Naxos*,

Naxos, and other Islands of the *Cyclades*. Marble is got in *Egypt*.

The COMMENTARY.

(x) You may read of several kinds of Marble, in the 6th Chap, of the 36th Book of *Pliny*, and in the 5th Chap. of the 16th Book of *Isidorus*. Amongst these, as the *Parian* is the most innocently white, so the *Lacedæmonian* doth boast the greatest Verdure, and doth recreate most with the Excellency of its Greeness. *Martial* means this in the 84th Epigram of his first Book,

Quisquis picta colit, Spartani frigora Saxi.

i. e. Mansions of the Nobility are adorn'd with *Laconick* Marble; and because *Lacedæmonian* or *Spartan* Marble was Party-coloured (as it were) with Skales, therefore he calls them painted. *Ophites* is so named, because 'tis speckled like a Serpent.

As for the Manner of cutting Marble, it is done with Sand though it seems to be done with Iron, viz. a Saw (the Inventress of which Instrument, and also of the Compasses, was *Perdix*, the Daughter of *Dadalus*) pressing the Sand in a very slender Line, being drawn to and fro, cuts it with the very Track. In that magnificent Structure of *Solomon*, there is mention made of Stones saw'd with Saws within and without, 1 *Kings* 7. 9.

C H A P. XVI. Of Precious Stones.

(a) **T**HE *Gems* and *Precious Stones* of the Ancients, are pretty well known, especially those that retain their old Names, as *Diamonds* and (b) *Emeralds*, *Chrysolites* and the *Saphyr*, the *Topaz*, and the like. But as for the rest, as the *Phrygian* and *Thracian*, the *Arabian*, *Mephites* or *Egyptian Stone*, and others, they are altogether unknown.

Many are of Opinion that (c) *Alabaſter*, wherein odoriferous Ointments were preserved, is not to be had now; for that, whereof many kinds of Vessels are made, as Basons, Candlesticks, &c, is not true, but counterfeit.

I shall not forbear to mention that admirable Gem of King *Pyrrhus*, call'd in Italian (d) *Agata*, and in Latin *Achates*; wherein was a Vein representing *Apollo* playing on his Harp in the Middle of the Choir of the (e) Nine Muses, as *Pliny* tells us, in the first Chapter of his 37th Book. Though that was the only Jewel in the World, yet I do not reckon it amongst the ancient Pearls which are now wanting, neither is it false what is reported of that Stone.

There is a Marble to be seen at *Ravenna*, which represents a Priest going to offer to the Sacrifice of the Mass, and elevating the most sacred Host. Pope *Paulus* the third scrap'd it with his Knife, supposing it to have been painted, but he found those Veins to be *natural*, and so to be the Workmanship of Divine Wisdom.

The *COMMENTARY*.

(a) Among the many Things, which are conceiv'd in the Womb of our common Parent, and which as its natural Issue, do proceed from thence, certainly *Pellucid Jewels* and *Precious Pearls* so rich in *Lustre*, and of so divine a *Purity*, seem justly to challenge the greatest Dignity. They are made of the most refin'd Earth, compacted into an excellent *Transparency*, which produce various Effects, and are endow'd with very extraordinary *Vertues*. The Variety and Beauty of their Colours make them extremely admir'd by most Men.

Gems are the *Stars* of the *Earth*, and shine in competition with those of the *Firmament*, disputing with them for Splendor, Beauty, and Glory. Nature produceth nothing more Rich, and sufficiently confesseth it in her most careful laying them up, and hiding them in her private Cabinets, and Repositories in the inner Parts of the Earth ; so that they are not easy to be come by, but their Value and Price make them worth the Searching for, even thro' the Bowels of the World.

Tho' some distinguish Gems and Stones from *Margarites*, which are rather a part, and the issue of a Shell-Fish (*Concha*) than of a Pearl or Jewel ; yet the Name in *Latin* is us'd promiscuously for all Three : For *Margarites* which *Ferome* calls Grains of the Red-Sea, *Martial* styles *Lapilli Erythrai*, i. e. Stones or Gems of the same.

Some make this Difference betwixt Gems or *Margarites*, and Precious Stones, The former (they say) are a *Pellucid Substance*, as *Emeralds*.

ralds, Chrysolites, Amethysts, &c. But the latter are not transparent, as *Obsidians, Veitani, &c.* But *Margarites* are neither Gems nor Stones, but (*Concha vel Uniones*) Pearls of Shell-Fish generated in the Red Sea, and in many others.

Zonaras in the 3d Book of his Annals, mentions a *Margarite* or Pearl, which *Perozes* King of *Persia* being reduced to extremity of Danger, in his Expedition against the *Huns*, took from his right Ear, and threw away, lest another should wear it after him, or he should be discover'd to be the King. This Jewel being found afterward, *Justinian* the Great would fain have redeemed it with a vast Price from the Hands of the Barbarians, but he could not do it; the Savages refusing to let him have it, who design'd to keep it, as a *Token* and Monument of *Persian* Folly.

Egnatius in his Journal of *China* tells us, that in the Kingdom of *Bisnaga*, there was found a Jewel of so great Value, that it was sold to a neighbouring Prince for 1000000 Crowns.

Columbus in his third Expedition to *America* in the Year 1498, brought into *Spain* from the Isle *Cubagua*, a great Quantity of Pearls, where they were so cheap (being daily fish'd for) that an *Indian* Woman gave to a *Spaniard* for a crackt Earthen Dish, four Bracelets of Pearl; from whence it is manifest, that the Red-Sea only cannot Boast of this kind of Wealth and Riches.

(b) [*Emeralds.*]

The Scripture makes mention of this Stone as of a precious Jewel, and placeth it among those which the High-Priest was wont to

wear in his Ephod, and those which adorned the *New Jerusalem*. Heretofore the *Emerald* was in great Esteem, and was next in worth and Value to the Pearl; but the great Quantities of them brought Yearly from the *Indies*, have lessen'd their Price in the Opinion of the World. The Truth is, Men so highly account of Things that are *Rare*, that they quite undervalue Things that are *Common*.

At the first Discovery of the *West-Indies*, a *Spaniard* in *Italy* demanded of a *Lapidary* the Price of an *Emerald*, who told him it was worth about 100 Ducats; whereupon the *Spaniard* being very glad, carry'd him to his Lodging, and shewed him a Cabinet full of such Stones. The *Italian* seeing so great a Number, said, they were worth about Crown's a-piece; Thus it is with all Things which *Plenty* makes Cheap, and to which *Scarcity* and *Rarity* add a Price.

Pliny tells us, among divers Excellencies of this Precious Stone, that there is nothing more delightful or recreative to the Sight, than the refreshing Verdure of a grateful *Emerald*; and reports withal, that a *Roman Lady*, *Lollia Paulina*, Wife to *Caligula*, had Head-Tire and a Gown embroidered most richly with Pearls and Emeralds, in which she laid out to the Value and Charge of 400000 Ducats. Her Pride and Vanity might have had as many now a-days, for less than half that Sum of Money.

Many are found in several Places of *America*; and the Kings of *Mexico*, who highly esteemed them, were wont to hang them in their Nostrils. They put them also on the Faces of their Idols.

The Places where they have, and where to this Day they still find them in greatest abundance,

dance, are the New Kingdom of *Granada*, and *Peru* near to *Manta* and *Portviel*. There is toward that Place, a Territory call'd the *Land of Emeralds*, in regard of the great Number to be found there, but hitherto this Region hath not been fully conquer'd.

The *Emerald* is bred in Quarries just as the *Crystal*, and runs along (as it were) in a Vein, and grows finer and finer, and thicker and Thicker by Degrees.

We see some half White and half Green; some all White, and some all Green, and most perfect and entire.

Some we see of the Bigness of a Nut; yet, none can come near the Greatness and Figure of the Plate or Jewel at *Genoa*, unless we give Credit to and believe *Theophrastus*, who allows four Ells in Length, and three in Breadth to that Emerald which the King of *Babylon* presented to the King of *Egypt*: And who doth further report, that there was in the Temple of *Jupiter* an *Aguglia* Needle, or Pyramid made of four Stones of Emerald 40 Cubits long, and in some Places 45 Cubits broad. And that at his Time, there was at *Tyre* in the Temple of *Hercules*, a great Pillar of Emerald, which perhaps was nothing else but a green Stone, that was a Bastard-Emerald, to which they gave falsely this Name. As some say, certain Pillars of the Cathedral Church of *Cordona* are of Emerald-Stones, and were put there since the Time it serv'd instead of a *Mosque* to the Kings of the *Moors*, who reign'd in those Places.

In the Fleet which came from the *Indies* in the Year 1587. there were two great Chelts of Emeralds

rals, from whence we may judge of the great Quantity which is found in *America*.

In a Word, as there is nothing but Rarity, which stamps a Value to Things, so the Price of the *Emerald*, would be much enhanced if it were as scarce as the Diamond.

(c) [*Alabaſter.*].

Pliny ſaith, That wet Perfumes were beſt preſerv'd in *Alabaſter*, and dry Perfumes in *Oil*. *St. Jerome* on the 26th of *St. Matthew*, takes the *Alabaſter* for a kind of *Marble*. The *Greeks* for a Stone Pot for Ointments, *μὴ ἔχει λαβὰς*, i. e. without Handles, or which, becauſe of their ſmoothneſs, can ſcarcely be taken hold of. From whence comes the Name of the *Alabaſtrites*. And we read in *Demosthenes* of the *Alabaſtrotheca* pro *myrothecis*, i. e. for Boxes of Ointment.

(d.) [*Agate.*].

Authors tells us, That an *Agate* is a dark Jewel, chequer'd about the Middle with black and white Spots, and that it ſomewhat reſembles the *Hamatites* or Blood-Stone; and that Magicians were wont by the Perfume thereof to calm Tempeſts, and to ſtop the Courſe of Rivers.

Wilhelmus Pariſienſis tells us, That an *Agate* reduc'd to Powder, was wont by the *Britains* to be put into Beer, which whoſoever drank that was not a Virgin, was forc'd to Vomit.

There is a large Deſcription of this Stone in *Langius* his *Medicinal Epistles*, who ſaith, that an *Agate* is a black Stone, compacted of ſulphureous *Bitumen* at the Mouth of *Gatis*, a River of *Lycia*: which when it is burnt, ſmells of *Bitumen*

men. 'Tis not very ponderous, yet a foffile
 bftance. There is a larger Description of it
 the 36th Book of *Pliny*, who among other
 ings, fays this of its Scent, That it hath a
 lack of discovering the Falling-Sicknefs, and
 rginity.. Some think that *Achates*, that faith-
 l Blade *Aeneas's* Companion, had his Name
 in this Stone, tho' fome derive it from *Axes &*
 10, i.e. a *confuetudine Dolendi*, from a Cuf-
 to- ry Grief. A very trivial Etymology.

(e) [*Apollo in the middle of the Nine Mufes.*]
 Of that Ring of King *Pyrrhus* enrich'd and
 orn'd with an *Agate*, not only *Pliny* makes
 mention, but *Solinus* alfo in his 2d Chapter, and
 alfo *Alexander ab Alexandro*, lib. 2. Genial.
 er. and *Simon Majolus* in Colloq. Cantic. *Dier.* of
 which fings *Mardebannus*.

Rex Pyrrhus digito geffiffe refertur Achaten.

Cujus plena novem fignabat pagine Mufas,

Et ftans in medio cytharam tangebatur Apollo.

" *Pyrrhus* his Ring an *Agate* had fo fine.

" It held engraven all the *Mufes* Nine,

" *Apollo* ftanding in the tuneful Choir,

" And fweetly touching his melodious lyre.

Which Verfes *Raderus* quotes in his *Commen-*
y on the 12 *Epigr.* in the 4th Book of *Mar-*
l, and thinks that *Stella* the Poet had a Ring,
 it had ten Laffes ingrav'd upon it Why the
 ules are faid to converse with *Apollo*, *Pierius*
 genuoufly fhews in the 17th Book of his
eroglyphicks. And *Macrobius* fhews in the

Chapter of the 2d Book of *Scipio's Dream*,
 at *Apollo* was call'd *Mufary* 10, the Captain
 is it were) and the Leader of the *Mufes*, by
 which were fignified the celeftial Orbs.

C H A P. XVII.

Of Fruits.

THOUGH we have a pretty many of th
Fruits which the Ancients had, yet th
great Diversity of their Kinds, is the Reason
why we know not what they were, except som
few, which still retain their ancient Names, a
Quinces, and Apples called *Apiana*, *Roscinda*
Melimela, i. e. Sweetings.

Of others we have no knowledge ; no, no
of Pears neither ; for besides that which i
call'd *Apianum* and *Muschaculum*, the Musk
Pear, which is called also the Proud-Pear, and
a few more, we know no other.

Many would have that to be the *Crustumium*
which is call'd at this Day in *Italian*, *Ghiaccivoli*
but I believe that to be a corrupted Word, and
suppose that Pear to be the same, which is now
in Use, and is call'd *Perobnon Christiano*, i. e. th
Boon Christian, q. d. *Pyrum Crustumianum*. Th
Name of this and of two more, *Virgil* expresseth
in one Verse.

Crustumis, tyriisque Pyris, gravibusque volemis.
-----“ Nor the same Branches bear.

“ *Wardens, Crustumians, and the Syrian Pear.*

neither doth he mention any other kind of Pear
as *Pliny* observes. The same Author in divers
Places speaks of three kinds of Apples, viz. c
Pomum Roscidum Cotonenm, i. e. the Quince
which he calls the *Golden*; and the *Naranja*
i. e. the Orange, which he styles the *Happ*
Apple.

We have also no knowledge of *Grapes*, but only of a few, which we find remaining in the ancient *Nomenclature*, as the *Rhetica*, *Bumasta*, *Purpurea* (the Purple) *Precia*, *Apiana*, now called the *Muscatell* (à *Muscaram telis*) from the Stings of Insects, and not from *Moschos*, Musk, as some conceive.

The Ancients call'd one kind of Grape *Apiana*, from *Apis*, a Bee; because that Insect did often visit, and did much delight in that Sort of Fruit.

That celebrated Wine, which is call'd *Faler-num*, is a *Greek* Wine brought from *Vesuvius*, and (as some will have it) 'tis call'd *Magna Guerra*. As for other Fruits, we know nothing of them, I am perswaded there are many Sorts lost, and others have risen, and sprung up in their Room.

The C O M M E N T A R Y.

Varro and *Macrobius* treat of several Sorts of Fruits, the one in his Book of *Husbandry*, and the other in the 3d Book of his *Saturnalia*. The general Name of all Fruit, whether hard or soft, is *Pomum*, as *Pomarium* is taken for every Orchard where Fruit Trees grow, and *Pomona* is said by *Ovid*, to be the Goddess that presides over all Gardens.

But concerning the Kinds of *Apples* and *Pears* mention'd here by our Author, and also of several Sorts of *Grapes*, and of the Variety of *Wines* that are made of them, the Reader may be pleas'd to consult the learned Comments of *George Bersman*, *Ludovic. de la Cerda*, and *Frederick Taubman* on the 2d Book of *Virgil's Georgicks*.

Pomum is divided into two Kinds, *Malum Nux*; the former signifies any Fruit which is not covered with a Shell, though it have sometimes within either Stones as *Peaches*, &c. be full of Kernels, as *Pomgranates*. The latter hath a *Shell*, and a Kernel within, as *Macra* defines it; though sometimes *Nux* is comprehended under the Name of *Pomum*, as *Martial* calls Pine-Nuts *Poma*, in the 2 Epigr. of his 13th Book.*

*Poma sumas Cybeles procul hinc discede viator:
Ne cadat in miserrum nostra ruina caput.*

Whereupon hangs a Story, That when *Vatinius* being about to play a Prize, and being afraid of being pelted with *Stones* (as often happened) he desired it might be enacted, that none should throw any Thing but only *Apples* wherefore at that Juncture, one ask'd *Vagellus* the Lawyer, whether a *Pine-Nut* was an *Apple*. Yes, (saith the Advocate) if you call it *Vatinius*: For the Man was generally hated all, and therefore *Vagellus* had a Mind that should be soundly pelted with those Nut with Stones.





SECTION II.

Of artificial Things in Use among the
Ancients, but now lost.

CHAP. I.

Of Buildings.



THE Manner of Building both *conveniently* and *handsomely*, had been quite lost, had not there remained some Foot-steps of the Art, and had not some ancient Fabricks been preserv'd standing until this Day; which are such, as not only fall *short* of that Magnificence and Beauty, but are also such whereof now there is no Use; as *Theatres* and *Amphitheatres*, of which there is but one entire one to be seen in all *Italy*, and that is at *Verona*, wherein Lions and other wild Beasts were wont to be slain, and wherewith sometimes Men did encounter and engage.

The Form of an Amphitheatre was this: It was surrounded on every Side with Stone-Stairs, every one of which being of a larger Circumference than another, it did (as it were) amount and rise upward into an handsome Wideness, and afforded a great deal of Room for the Spectators to sit in, and commodiously to behold the
Recreation.

Recreation of Hunting, and other Sports exhibited therein. It was supported with very high and most stately *Portico's*, and was pervious below with a Number of Doors, so that there was Space enough for every one to enter, without Molestation, or the least incommoding one another.

It was certainly a most wonderful Work, which stood neglected about 600 Years, and was only an Harbour and Receptacle for Harlots, till the Inhabitants of *Verona* bethought themselves, and cleans'd it, and restored it to its pristine Beauty. There is yet standing a Part of the Wall wherewith it was encompass'd, but 'tis almost demolish'd and utterly ruin'd, and serv'd for no other Use, but to hang a Covering on, to shelter from the Weather.

This *Amphitheatre* was built by a private Person, as may be gather'd from the Inscription. A King in this Age would have enough to do to erect such a Fabrick.

At a little Distance from *Turin*, near the Road to *Pignerol*, there is to be seen a sort of a round Rampart: There had formerly been an Amphitheatre, in that Place, whose Stony Foundations are yet to be seen, from whence the Stairs did arise, and spread upward into a good handsome Wideness. Some think that *Hannibal* encamp'd his whole Army and quarter'd it there, not considering that it could scarcely contain 200 Men. There was in that Town a Roman Colony, which designing to make a new City, rais'd and built, (as *Varro* tells us) such kind of Fabricks and Structures as these. And hence it is, that not only the Amphitheatre at *Verona* stands almost entire, but some Foot-steps and

and Remains also of the *Campus Martius* are still to be seen; the same Remains are to be found at *Rheggio, Vicenza*, and in other Cities, and therefore was that Amphitheatre built at *Turin*, and other Edifices of this Nature, which are now demolish'd, and utterly raz'd.

(g) A Theatre is the *Semicircle* of an Amphitheatre, wherein were represented Comedies and Tragedies; the Scenes were rich and magnificent, of which, some were supported by Marble Pillars. *Pliny* tells us in the 14th Chapter of his 36th Book, that *M. Scaurus*, *Scylla's* Son-in-law, erected a Theatre of 360 Pillars, which had a treble Scene, one above another. The lowest consisted of Marble Pillars (of 36 Foot) that in the Middle was made of Glass, and the highest had Columns covered with Gold, betwixt which were plac'd three hundred Statues. The *Area* of this Theatre would hold and contain fourscore thousand Persons; its other Furniture were rich Tapestries, and most exquisite Pictures.

M. Curio, who dy'd in the War 'twixt *Cæsar* and *Pompey*, devis'd a Piece of Art more ingenious than that; He built and erected two Theatres of Wood, moving with an equal Poise on iron Hinges, in which, being mutually turn'd from each other, there were acted in the Morning several Plays; so that they who sat in one, could neither see nor hear those that were in the other. Afterwards, both these Theatres being wheel'd about, together with the People in them, and both the Semicircles being clap'd together, represented the Figure of an Amphitheatre, wherein they saw all the Sports and Huntings that were shewn to the Spectators.

It was certainly a miraculous Contrivance, and a most stupendous Work, which no Prince in our Age is able to parallel; and yet the Invention deserves rather Censure than Praise, and that even in an *Heathen*; much more then is it worthy to be condemn'd in *Christians*: And therefore *Pliny* displaying its most exquisite Magnificence, is very severe in his Censure of it.

There were four Theatres at *Rome*, and two Amphitheatres; there was also in Use another kind of Theatre, call'd (*b*) *Odeum*, a Place purposely design'd for Musick and Singing, as *Pansanias* tells us in his first Book, and *Viruvius* in the 9th Chapter of his Fifth. *Suidas* saith, that *Pisistratus* built such a one at *Athens*, and (as *Dion* informs us) *Trajan* erected such another at *Rome*, by the Art and Skill of *Apollodorus* the Architect, whom *Adrian*, out of Envy and Emulation, first banish'd, and then kill'd. *Tertullian* also mentions this Fabrick in his Treatise of the Resurrection.

The C O M M E N T A R Y.

Lipsius hath wrote so copiously and plainly of Theatres, that nothing can be added or diminish'd from his Treatise. That Amphitheatre, celebrated so much by *Martial*, whose Remains are yet to be seen at *Rome*, was built by *Vespasian*, and dedicated by *Titus*. *Lipsius* tells us it was begun by the former, and finish'd by the latter, who had the Credit of building it, it being usual with the Romans to father a Structure upon him that dedicates it. The flattering Poet falsely ascrib'd it to the Emperor *Domitian*.

(f) [*And that is at Verona.*]

'Tis not certain who was the Founder of this Amphitheatre, as *Lipſius* tells us, though he ſuppoſeth it was built before *Auguſtus's* Time. It is commonly reported to have been built by that Emperor, but others attribute it to *Maximilian*. 'Tis a noble Remnant of Antiquity, but one of the leaſt of all the Romans built, but the beſt preserv'd; for moſt of the great Stones of the Out-ſide are pickt out, and the outward Wall is very ruinous, yet Care hath been taken to keep the Seats whole and entire, of which there are forty Rows, every one of which is a Foot and a half high, and as much in breadth; ſo that a Man ſits conveniently in them, under the Feet of thoſe of the higher Row; and allowing every one a Foot and a half, the whole Amphitheatre can hold twenty three thouſand Perſons.

In the Vaults under the Rows of Seats, were the Stalls of the Beaſts that were preſented to entertain the Company: The Thickneſs of the Building from the outward Wall to the loweſt Row of Benches, is 90 Foot. At each End of the Amphitheatre, between the Seats, is a Gate of 25 Foot high, for an Entrance into it out of the Street; and over each Gate a kind of Platforms 20 Foot long, and 10 broad, enclosed before, and on the Sides with Rows of Marble Baluſters.

(g) [*A Theatre is the Semicircle of an Amphitheatre, &c.*]

An Amphitheatre conſiſts of two Theatres: Now a Theatre bears the Figure of a Semicircle, ſhap'd into Horns, which Horns of two Theatres

tres uniting into a Circle, do make an Amphitheatre.

Amphitheatres and Theatres, were certain Places, as Scaffolds with Pentises, wherein the People of *Athens* stood to behold the Interludes that were shew'd; and they were made like an half Circle, with Benches one above another, that they might, without any Impediment, see the Plays.

Dionysius did first institute them in *Athens*. In the midst of the Scaffold or Theatre, stood the Stage, whereon Comedies, Tragedies, and other Shows, were exhibited to the common Sort; of whom the Romans took the Example to make such Scaffolds.

Theatres were at first but temporary, and for a Time. Afterwards *Marcus Scaurus* built one to continue for 30 Days; and lastly, *Pompey* the Great erected one at *Rome*, to be perpetual, and for ever; for which *Tacitus* saith he was blam'd by the Senate; but certainly, therein he consulted their Advantage, it being less chargeable to have *fixt* Seats in a Theatre, than every Year to be making *new* ones.

This was the most *stupendous* Work that ever was effected by the Art of Man, as *Pliny* affirms, in the 15th Chapter of his 36th Book. And therefore when *Nero* was about to shew to the German Nobility, an Instance of the Roman Grandeur and Magnificence, he brought them into this Theatre beset with People. After this, there were several other Theatres, which though at first they were built for Feats of Activity, and other robust Exercises, shewing Strength and Swiftnes, yet afterwards they were made

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use of for Comedies and Interludes, and such like *scenical* Entertainments.

[*Marcus Curio devised a Piece of Art more ingenious than that.*]

Marcus Curio, at his Father's Death, built two Theatres of Timber after such a Fashion, that they might, in the Time of Interludes, stand one contrary to another in such wise, that neither Play should disturb one the other. And when it pleas'd him, he turn'd them together, and made an Amphitheatre; which was a round Scaffold, full of Benches of divers Heights, wherein he set forth a Game of Sword-Players.

(b) [*Another kind of Theatre, call'd Odeum.*]

This Word frequently occurs in *Cicero*, and in Histories. *Pausanias* tells us, that in the *Odeum* in the Lobby to the *Athenian* Theatre, there were placed the Statues of the *Egyptian* Kings: And *Sealiger* tells us in his Book of Poetry, that Places without the Theatre dedicated to the Muses, were call'd by the same Name; such as was that at *Athens*, design'd by *Pericles* for Musical Consorts, whose inward Part had many Seats and Pillars; the Roof was arch'd and steep, pointing into a Cone or Pyramid at Top.

There were four of these Musick-Houses in *Rome*; the first was upon the *Aventine* Hill; the second, between the *Palatine* and the *Cælian*; the third, near *Pompey's* Theatre, and the fourth near *Domitian's*. Of the Musical Theatre of *Trajan*, and why *Adrian* commanded the Death of *Apollodorus*, his Architect, you may read in *Xiphilin*, in the Life of *Adrian*.

C H A P. II.

Of the Great Cirque, or Shew-place of Buildings, call'd Basilicæ. Of Exchanges, Burfes, or Places for Merchandise, call'd Tabernæ. Of Bridal-Houses, call'd Nymphæa.

(i) BESIDES the afore-mentioned Theatres, there was also a great *Cirque*, in the Center whereof were 7 *Meta*, or Pillars, and in its whole Compass 12 Doors.

They were wont here to run with Chariots, which driven about the Goats or *Meta*, did denote the 7 Days of the Week; and then passing through the 12 Doors, did signify that these 12 Plays were instituted in Honour of the Sun, as *Cassiodorus* relates. The Spectators sat round about in Galleries, as they did in the Amphitheatre.

There were 8 *Cirques* at *Rome*, but now there are none; instead of that Sport, *Running of Horses* for a Mile was instituted; a Recreation not very pleasant, for he that seeth the Beginning and the Middle, will never be able to see the End. And this Play they call'd [*Ad Pallium Carcere*] q. d. *A Mantle Course*, in regard the Conqueror was presented with Linen to make such a Garment.

(k) There were also certain Fabricks, call'd *Basilica*, of which at this Day we see no use; though formerly they were in every City, as *Suetonius* testifies in the Life of *Augustus*, in these

Words

SECT. II. Of the Great Cirque, &c. 55

Words [*Corpus Decuriones municipiorum, &c.*] i.e. The *Decuriones* of the municipal Towns and Colonies, convey'd his Body from *Nola* to *Boville*, marching solemnly by Night (by reason of the Heat of the Weather) reposing it in the Day-time in the *Basilica*, or Chief Palace or Temple of every Town they passed through.

(1) There were one and twenty of these kind of Buildings at *Rome*, though *Pub. Victor* mentions but nineteen, two being decay'd and quite ruined. But that which excell'd them all, was that built by *Julius Caesar*, and call'd from his Name, *Julia*. 'Twas built like our Churches, and was supported with a hundred Pillars, divided into four Rows, every one having twenty-five; and these hundred Pillars made two *Piazzas* on each side, over which was an open and airy Walk, as *Vitruvius* describes it. Nay, according to the Description of *Theodosius* and *Valentinian*, it was enrich'd with Gold, and adorn'd with Marble. *Virgil* mentions it in his 7th Book, and though he ascribes it to a *Latin King*, yet he really mentions this *Julian Basilica*, of which he thus sings.

Tectum augustum, ingens, cœnæ sublime columnis
Urbe fuit summa, Laurentis Regia Pici,
Horrendum Sylvæ, & Religione parentum.
Hic Sceptra accipere, & primos attollete Fasces,
Regibus omen erat: hoc illis curia Templum.

" Rais'd on a hundred Pillars 'midst the Town,

" Stood *Picus*' Court and Palace of Renown.

" Awful with Groves and Mysteries profound,

" Here Kings first Scepters had, and first were crown'd.

D 4. " This

“This was to them their Temple and their Court,
 “Here they at sacred Festivals resort.

In which Piece of Poetry, he doth not only describe a *Basilica*, but gives the *Reason* of the Name, and tells the Use for which it was design'd. *Basilica* is a Greek Word, signifying in Latin, *Regiam*, the Court, *i. e.* the Royal Seat of the Roman Kings; for there they were wont to receive the *Ensigns* of Royalty, *viz.* The Sceptre, the Axes and the Rods, the Purple Gown, &c. In these Places they gave Audience to Embassadors, and administred Justice; for as *Quintilian* tells us, there were 13 Tribunals, and as many *Prætors*, or Judges. (m) It may here be noted, that Christians built their Churches in Imitation of these *Basilica*, being supported in the Middle with Pillars; and therefore those Churches that are so, are call'd in Latin *Basilica*, and the rest are styled *Ædes*.

(n) There were also at *Rome* certain Places for trading and merchandizing, call'd *Tavernæ*, design'd for no other Use than for Factors and Dealers to walk under, that they might commodiously bargain with Safety in the Shade, free from the Annoyance of Weather, and the Disturbance of the People still passing by. One of these was call'd *Argentaria* (o), from *Argentum*, Silver, because therein only Gold and Silver Plate, Necklaces, Rings and Bracelets of that Metal, and the like, were expos'd to sale. These are also mentioned by some certain Civil Laws, such as perhaps are but little minded, and less understood by them that read them.

(p) Besides these *Basilica*, there were also at *Rome* eleven other Edifices, call'd *Nymphææ*, as *Pub. Victor* informs us. They were spacious
 Halls,

Sec. 11. Of The Great Cirque, &c.

Halls, made use of for Nuptials, by those that had no Conveniency of their own for such solemnities. And for this end (as *Zonaras* declares in the Life of *Leo the Great*) these *Nymphaeae* (suppose) were supported with Pillars. They were built with Kitchens, Parlours, Closets and the like, wherein they laid Towels and Napkins, Bowls and Dishes, and other Utenfils and were call'd *Nymphaeae*, because the Greeks call'd the Bride a *Nymph*.

Capitolinus tells us, that *Gordian* the Emperor join'd Baths to his *Nymphaeae*, for the Ancients did frequently bathe before Supper; and 'tis easy to gather as much from two Laws of *Theodosius* and *Valentinian*. *Suidas* saith, that the Water was brought to these Bridal-Houses from a Fountain, call'd now, *Enneacrunos*, and formerly, *Callirrhoe*.

These *Nymphaeae* had also most stately and ample *Piazzas*, large enough to walk in; one whereof *Augustus* built in the Place where the House of *Vedius Pollio* (whose Heir he was) was ruined, and inscrib'd it with the Name, not of *Pollio*, but of *Livia*; as *Dion* writes. And many others built glorious Porticos.

The C O M M E N T A R Y.

- (i) There was formerly at *Rome* a great *Cirque* an Oval Figure, resembling the Heavens; in the Center whereof stood an *Obelisk* for the Sun, and on each Side three *Metae* or Marks, or Pillars, directing the Race for the other six Planets. There were also in it *Carceres*, or Barriers, Place out of which came the running Chariots, call'd, because the Horses were kept in them,

till such Time as the Magistrate gave the Signal.
Hence *Virgil* in his *Georgicks*, *Lib. 1.*

----- *Carceribus sese effudere Quadrigæ.*

And in the 5th of his *Æneids*,

Corripuere, rumpitque effusi Carcere currus.

In which Place *Servius* understands by *Carcerem repagulum, quo Equi coercentur.*

These Horses were call'd *Circenses*, and the Men that drove them, are term'd by *Ulpian*; *Agitatores*, which were distinguish'd by their Liveries, for some were *Ruffati*, of a Russet Colour inclining to red; some *Albati*, of a perfect white; some *Prasini*, of a deep green; and others *Veneti*, of a Venice Blue, or of a Turkey Colour. So that these *Coach-Races* were divided into four Companies, distinguish'd by those Colours. From whence arose that Partition into several Factions, *viz.* Russet, Green, &c. to either of which, whosoever adher'd, was term'd [*Factionarius*] a *Factionist*.

The Reward that was given by the Judge of these Sports to the victorious Driver, was a Towel or *Napkin*, as may be gather'd from *Juvenal* in his 11th Satyr.

*Interea Megalesiaca spectacula Mappæ,
Idæum solenne colunt; similisque Triumpho,
Præda Caballorum Prætor sedet, &c.*

" Let us our peaceful Mirth at Home begin,

" While Megalensian Shews are in the Circus
seen;

" There (to the Bane of Horses) in high State,

" The Prætor sits on a triumphant Seat.

These Factions were very zealous (especially the

the green and blue) and earnest in those Games, insomuch, that to know the *Nature* and Quality of an Horse, they would smell of his Dung, from whence they would guess at his *Generosity*, or *Baseness*. If they found he was of a good Breed, they would not spare for Price or Management. Their *Mares* were chiefly maintain'd and kept for that use, and for that Honour of the Thing, were adorn'd with *Palms*, and very much valu'd when old or dead, according to *Plutarch* in the Life of *Cato*.

(k) [*There were certain Fabricks; call'd Basilicæ.*]

These were upper Buildings, both stately and costly, which were supported with flat-sided Pillars, and had Walks under them, not unlike our Cloysters, only the *Intercolumnia*, or Spaces between them, were open to the Ground, as *Godwin* tells us. But he seems to have a wrong Notion of these Buildings, which (according to him) must have been like our Exchange, having Courts of Judicature above, with Piazzas underneath; whereas they were rather like our Churches (whose Form was taken from them) stately Buildings, supported with two or three Rows of Pillars; in one part whereof were the Tribunals, in the other Part, Shops or Walks, as in *Westminster-Hall*.

That they were upper Buildings, may be gather'd from the Custom of walking under them, and therefore call'd *Sub-Basilicani* by *Plautus*, which some think to be nothing to the purpose, the Word *Sub-Basilicani*, signifying only the Walkers in the *Basilicæ*, under or near the Tribunals. They were in the same Sense call'd *Sub-vestri*, and the Word *Basilicatus* is us'd in the same Sense.

That

That private Negotiations were transacted in them, doth evidently appear from divers Authors. Their principal Use was for Judges to sit in, but Merchants, in their Absence, might lawfully do any Business in them.

(l) [*There were one and twenty of them in Rome.*]

Pliny mentions but four in his Book, but that there were more, it easily appears from *Cornelius Nepos*, *Suetonius*, and from the Epistles of *Pliny* the younger.

(m) [*Christians built their Churches in Imitation of them.*]

The Name of *Basilica* was afterwards extended to Churches, which holy Houses were built so as to look to the East. For it pleased Posterity, that Religion should have an Aspect toward that Part of the World, which first was enlightened by the Beams of Christianity.

(n) [*Tradesmens Shops, &c. call'd Tabernæ.*]

The Word *Taberna* (according to *Ulpian*) comprehends any Building or Edifice commodious for Habitation; yet usually we understand by it a Place built on purpose for Merchandize or Traffick. The chiefeſt of which are *Taberna*, which Word properly signifies a Place built (*ex Tabulis*) of Boards.

(o) [*Were called Argentarii.*]

Which were commonly placed about the *Forum*, as *Livy* tells us in his 26th Book, and *Vitruvius* in the first Chapter of his 5th Book.

The Masters of these *Taberna* were called *Argentarii*, whose Office it was to adjust all Accounts, both of Receipts and Disbursements that concern'd both themselves and others.

But among the several Kinds of these *Taberna*, there was one called *Casearia*, a *Casæ*, i. e. from Cheese,

Cheese, not because Cheese was made or sold in it, but because it was wont to be smok'd there; it being a Custom among the Romans, and other *Italians*, to make a great Smoke with Reeds, Stalks, and green Wood, on purpose to colour and dry their Cheese. Hence that Distick in *Martial*.

*Non quemcumq; Focum, nec Fumum Caseus omnino,
Sed Velabrensens, qui bibit, ille sapit.*

g. d. That Cheese only is pleasant and grateful, which doth not suck in every Fume, but which is smok'd only, *Velabro*, in Tents or Booths.

(p) [Other Kinds of Buildings, call'd *Nymphææ*.]

These were large and capacious Fabricks, design'd for the Celebration of *Nuptial* Solemnities, and us'd only by those who had no Houses of their own: But this is contradicted by *Alciat* and *Beroaldus*; who think it to be a very foul Error to imagine these *Nymphææ* to be *Genial* Apartments appointed for Marriages.

Some take them for Baths, built by Princes for the sake of Posterity; wherefore *Julius Capitolinus* saith, that no Works of *Gordian* are remaining, besides the *Nymphææ* and Baths. So that these *Nymphææ* seem to be *Tepida lavacra*, Warm Bagnios, to wash in for Pleasure, but not for Health.

But where is the *Absurdity*, if we affirm with our Author, that *Gordian* did only adorn his *Bridal* Houses with Baths adjoining? And what *Solacism* is it to say, that by these *Nymphææ* we understand, as well Baths for Women, as *Nuptial* Chambers?

Some say, that Brides were call'd *Nymphs*, and so the word *Νύμφη*, because now they expose

pose themselves to open View, whereas formerly they appear'd cover'd with a Veil. Nay, the Greeks call Matrimony it self *Nymphæum*, because (as 'tis thought) Religion and Piety were propagated by *Nymphs* to Mankind, in regard no Rite or Worship was ever perform'd without their being mentioned. The Deities that presided o'er the Waters, were called *Naiades*; and because these *Naiades* were Nymphs in *Corpora tendentes*, therefore *Sobolis propaganda causa*, New-marry'd Girls were term'd Nymphs.

C H A P. III.

Of the Fora of the Ancients.

(9) **O**UR *Fora* differ much from the Antients, and are not so elegant, fine and stately. The Greeks form'd theirs into a perfect Square, surrounded on all Sides with double *Porticos*; whose upper Floors were spacious Walks, adorn'd with Marble Pillars and *Epistyles* of the same, *i. e.* little Pillars set one upon another, or *Chapters* of Pillars.

The *Romans* built theirs in an oblong Square, a third part longer than broad: They were also encompass'd with *Porticos*, which though but single ones, yet were they very large. In these the Bankers and Usurers had their Shops.

In the upper Floors were certain Galleries and prominent Buildings, call'd (r) *Mæniana*, from the Inventor *Menius*, very convenient for seeing the Combats of the Gladiators, which were formerly exhibited, and shewn in the *Forum*. The Form of this *Forum* was neat and handsome, and being very commodious against the

the Rain and Sun, we may easily conjecture what a one it was.

The C O M M E N T A R Y.

There are various Acceptations of the Word *Forum*, which is sometimes taken for a Place of *Trade*, of buying and selling, which we call a *Market*, a *Ferendo*, from carrying of Wares and Goods thereunto; and in this Sense it is always attended with some kind of Adjective, as *Forum Boarium*, the Beast-Market, *Forum Piscarium*, the Fish-Market. Sometimes it is taken for a Place of *Judicature*, where the Governour of a Province doth assemble his People, and dispence Justice according to Law; whence a Man is said, *Forum agere*, that keeps the Assizes. Sometimes it is taken for a Court of *Pleadings*, where Suits in Law are judicially determin'd, and where Oration to the People were usually spoken.

At first, of this Sort there were only three, the *Roman*, *Julian*, and that of *Augustus*: Afterward the Number was increased to six distinct *Forums*; for to the three former, were added the *Forum* of *Domitian*, founded by that Emperor; the *Forum* of *Trajan*, built with a stately Column or Pillar, of an 140 Cubits high, having all the noble Exploits of that Emperor engraven upon it. Lastly, the *Forum* of *Salust*, because purchas'd by him, with adjacent Gardens, since called *Horti Salustiani*.

But that *Forum*, which excell'd all the rest, was call'd the *Roman*, and the *Old Forum*, or absolutely the *Forum* by way of *Eminency*, as if there was no other. And here we must note, that as often as *Forum* is us'd in this latter Sense

Sense, *i. e.* for a Pleading-Place, it is so by virtue of the Figure *Synecdoche*.

(*r*) [*Prominent Buildings, call'd Mœniana.*]

Mœniana Edificia, were buildings, whose upper Part hung over the nether, so call'd, from one *Menius*, a certain *Roman*, who having riotously wasted and spent his Estate, and having sold the Remainder of his House that look'd toward the *Forum*, he preserv'd one Column for himself, from whence he projected some Beams and Rasters for the Enlargement of the Galleries, to see the Gladiators. And these outwardly extended or *jutting* Buildings, were call'd *Mœniana*. This *Menius*, through Luxury, was so poor a *Serub*, that his Wife was constrain'd to beg at Sepulchres, and to live upon Puddings that were eaten at Funerals; of which sings *Catullus*.

*Uxore Meni saepe quam in Sepulchretis,
Vidistis ipso rapere de rogo canam?*

Horace mentions this *Spark* in the 15th Epist. of his first Book.

*Menius ut rebus Maternis atque Paternis
Fortiter absumptis.*

C H A P. IV.

Of the Roman High-ways.

High-ways antiently were pav'd with Brick, as well without as within the City, even quite throughout the whole *Roman Empire*; for in the Kingdom of *Naples*, for a long Way together, are yet to be seen those *Cause-ways*.

The

The *Appian*, *Emilian* and *Flaminian* Ways, have their Names from *Appian*, *Emilius* and *Flaminius*, who were the Authors of them, and caused them to be made.

Plutarch tells us, that *Caius Gracchus* did not only take Care to pave the High-ways, but to mark out Miles by Stones and Pillars, plac'd and dispos'd at a certain Distance, and by other Stones fix'd somewhat nearer, to assist Horsemen in mounting their Steeds, without that Instrument in use for that Purpose, for *Siirups* were not as yet found out.

The Civil Law commands the paving of all Roads throughout the whole *Roman* Empire, a Thing not regarded by us now a days: And hence it is that we are so basely annoyed with Dirt in Winter, and with Dust in Summer; and therefore we are not comparable to the Ancients, but are far short of them in Cleanliness and Neatness. There were at *Rome*, one and thirty Publick and King's High-ways, and of others, four hundred and twenty four.

THE COMMENTARY.

Andr. Palladius tells us in his Book of the *Roman Antiquities*, that there were nine and twenty principal Ways in the City of *Rome*; three whereof were most famous and eminent, which our Author here mentions. That there were Persons elected to be *Overseers* (as we call them) of the High-ways, may be plainly gather'd from several Authors; and these *Curators* of the Ways were term'd *Vio-curi*, an old Word that occurs in *Varro*.

Suetonius tells us in the Life of *Vespasian*, that *Caligula* commanded the Cloaths of *Flav. Vespasian*.

sian to be stuff'd and bespatter'd with Filth and Dirt; for neglecting, when he was *Edile*, to cleanse the Ways, the doing of which did belong to his Office.

'Twas sometimes the Business and Work of the *Censors*, in the Time of Prosperity and flourishing of the Republick, to pave the Ways with *Flint* in the City, and to gravel them without, as *Livy* tells us in his 11th Book. And sometimes the making and repairing of High-ways did belong to the *Quæstors*, as *Suetonius* tells us in the Life of *Claudius*; yea, *Augustus* himself did not disdain to take this Care upon him, who, when he was *Curator* of the Ways, designed even *Prætorians* for the Reparation of them, and would have had them to have made use of two *Lictors*.

The Emperor *Antoninus* gave to the Overseers of the High-ways, a coercive Power, and a Liberty to punish whom they pleas'd, or to send them to be chastis'd by the Governour of the City. *Pliny* much commends *Cornutus Tertullus*, because, though of *Consular* Dignity, yet was he intrusted with the Inspection and Care of the *Æmilian* Way.

And indeed it was a generous and a noble Work, not misbecoming even Kings and Princes, to see that their Subjects may travel both with Convenience and Safety; neither can we wonder that the Ancients were so careful about their High-ways, since the Inspection of them was committed to the Gods, who were therefore called *Dii Vii*, and *Θεοὶ Ἑννέοι*, and *Lares Viales*, by comical *Plautus*. They were wont to sacrifice *Dea Vibilia*, who secur'd Mortals from Mistakes in their Way. And *Augustus*

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appointed the *Compitales Lares* every Year to be crown'd twice, with Flowers in the Spring, and with Garlands in the Summer.

[*The Appian, &c.*]

This High-way at this Day runs along thirty Miles of the Road between *Naples* and *Rome*, and is 12 Foot broad, consisting of huge vast Stones, most of them blue, or of an azure Colour, and generally a Foot and a half large of all Sides. The Strength of this Causeway appears in its long Duration; for it hath lasted above 1800 Years, and is in many Places for several Miles together, as entire as when it was first made; and the Botches that have been made for mending such Places, but have been worn out by Time, shew a very visible Difference between the ancient and the modern Way of Paving. One thing seems strange, that the Way is level with the Earth on both Sides, whereas so much Weight as those Stones carry, should have sunk the Ground under them by its Pressure. Besides that the Earth, especially in low Grounds, receives a constant Increase, chiefly by the Dust, which the Wind or Brooks carry down from the Hills, both which Reasons should make a more sensible Difference between those Ways and the Soil on both Sides: And this makes one apt to believe, that anciently those Ways were a little rais'd above the Ground, and that a Course of so many Ages hath now brought them to an Equality.

These Ways were chiefly made for those that go on Foot, for as nothing is more pleasant than to walk along them, so nothing is more inconvenient for Horses, and all sorts of Carriages;
and.

and indeed Mules are the only Beasts of Burden that can hold long in this Road, which beat all Horses, after they have gone it a little while, as Travellers tell us.

CHAP. V.

Of Libraries.

(*) **T**HE Ancients had certain publick Places wherein they had their *Libraries*, which were free for any one to go in and to read. (†) *Pub. Victor* tells us that there were nine and twenty at *Rome*, of which the *Palatine* and the *Ulpian* were the Chief; but we want this Con-
venience now a days.

There are but three only at this Time in *Italy*, viz. the *Vatican* at *Rome*, the (u) *Medicean* at *Florence*, and the *Venetian* in *S. Mark's*, which *Cardinal Bessarion* bequeath'd by Will to that famous Republick; but there's no free Admis-
sion for every one into these.

There are others in *Monasteries*, as in *St. Dominick's* at *Bologne*, and in *St. Anthony's* in *Venice*, and several others in other Places, which cannot be used but at certain Times, and then not without Leave neither; we may say the same of that of *St. Dennis* in *France*.

Theophrastus was the first that erected a co-
 pious and well furnish'd Library, to whom *Aris-
 totle* bequeathed his Books and his School, which he at his Death gave to his Scholar *Nel-
 lens*, after whose Decease, his Heirs at first were
 very careless and negligent of them; but percei-
 ving that *Eumenes*, King of *Attalia*, was inqui-
 sitive after them to convey them to *Pergamus*,
 they

they hid them under Ground, the greatest Part whereof was eaten by Worms. They were a long time after sold to *Apellico* at a very great Rate, who, though they were mightily defac'd, yet caus'd them to be transcrib'd, yet so as his Copies were full of Errors.

After the Death of *Apellico*, *Sylla* took Care, after his taking of *Athens*, for their safe Conveyance to the City of *Rome*, as *Strabo* informs us in his 13th Book.

Asinius Pollio (as *Pliny* writes in the 2d Chap. of his 25th Book) was the first that erected a Library there. *Ptolomæus Philadelphus* founded one in *Egypt*, consisting of 700000 Volumes, which was afterward burnt in the War between *Cæsar* and the *Alexandrians*.

That at *Constantinople* had 120000 Books, among which were the *Ilias* and *Odysseas* of *Homer*, writ in golden Letters upon the Bowels of a Dragon. This was consum'd by Fire (as *Zonaras* reports) in the Time of *Basiliscus* the Emperor.

The COMMENTARY.

(1) [*The Ancients had certain publick Places.*]

'Twas the Study and Care of wise Princes in former Times, to raise and build most stately Libraries, as so many Castles and Magazines of Learning, which they were wont to adorn with the Statues of Scholars, or of *Apollo* and the Muses; of which, see *Rader's* Commentary on *Martial's* Preface to his 9th Book.

If conquering Gamesters were dignify'd with Honours, and had their Brows incircled with Wreaths of *Palm*, and return'd home with the Pomp and Solemnity of triumphant Chariots;
then

then how much more ought *they* to be celebrated, who with vast Expences, and incredible Industry, have procur'd and preserv'd the Writings of the Ancients, that so they might fortify the Publick with such Fences as might benefit Posterity, as being the only Fountains of Eloquence and Civility?

The most eminent of these, was that of *Protolomæus Philadelphus*, who bore away the Garland from all the rest, in that he did not only heap together a vast Collection of Books, to the Number of 700000 (as *Gellius* in his 6th Book tells us) but deny'd Food to the almost famish'd *Athenians*, till he had gotten the *Manuscript* Tragedies of *Sophocles*, *Euripides* and *Æschylus*, for which (besides an Immunity from Impositions and Taxes) he gave them in Pawn 15 Talents, and afterwards presented them to them as a Gift, with their transcrib'd Originals.

Julian the Apostate gives an Instance of his Fausy and Love for Books, in an Epistle to *Porphyry*, wherein he commands him to send the Library of *George*, Bishop of *Alexandria*, to *Antioch*, and that whole and entire, under a great Penalty.

There have been others also, who have been careful and industrious in founding of Libraries, as, 1. *Clearchus* the Tyrant of *Heraclia Pontica*, somewhat seen in Philosophy, and a Disciple of *Plato*, and Scholar to *Isocrates*; tho' he arrived to that Pitch of Cruelty and Insolence, as to usurp the Title of the Son of *Jupiter*, yet was he commendable in this that he erected a Library, whereby he went beyond all other Tyrants. 2. *Julius Cæsar* design'd the building of Libraries, both Greek and Latin, committing the whole

whole Care and Management of the Business, i.e. the procuring, ordering, or digesting of the Books, to *M. Varro*, as *Suetonius* in the Life of that Emperor tells us. And afterward, 3. *Octavianus*, in that Part of his House which was burnt with Lightning, he built the Temple of *Apollo*, to which he added a Porch, with Libraries both Greek and Latin, rais'd from the Spoils of the conquer'd *Dalmatians*, and were called *Octavian*, from the Name of his Sister, as the same Author tells us in the Life of *Octavianus*.

Domitian is reported by *Suetonius*, to have repaired at *Rome* a burnt Library at a vast Expence, Copies being fetch'd from *Alexandria* to furnish it.

(t) [Pub. Victor tells us there were 29 at *Rome*.]

Andreas Palladius saith there were 37, the Chief whereof were the *Augustan* and *Octavian*, the *Gordian* and the *Ulpian*, built by *Ulpian Trajanus*.

And we read in *Budens de Assé* (Lib. 2.) that *Lucullus's* *Pibliorheque* was handsomely furnish'd with Books of both Languages, and was a publick Library, free and open for all Students whatever.

(u) [*Medicæana's* *Florence*.]

Of this, see *Melancthon's* *Chronicon*, Book 5. of *Mahomet* the second.

Scaliger tells us in one of his Epistles, that he diligently perus'd the Catalogue of the *Palatine* Library at *Heidelberg*, and said it was better furnish'd than that of the *Vatican*, wherein he found nothing but what was common and ordinary, except three or four Mathematicians, which also he knew to be extant in other Places.

C H A P. VI.

Of Private Buildings.

OUR Private Houses, for Form and Beauty, are not comparable to those of the Ancients, though Architecture now a days is sufficiently improved. They had before the Gates of their magnificent Structures, an Entry or Porch, called *Vestibulum*, which was a little Portal, fastned to the Door-Potts, under whose Roof one might stand, when the Door was shut. *Servius* upon that Verse in the 6th Book of *Virgil's Æn.* *Vestibulum ante ipsum* ---- saith, it was an arch'd Roof supported by two Pillars. The Form or Model of this Porch is to be seen in the *Alla Rotunda* or *Partheon* at *Rome*, built by *M. Agrippa*, where are most exquisite Columns before the Portal of burnish'd Brass.

Afterwards thro' a large Gate there was an Entrance into a Hall, which was a great deal larger than the *Vestibulum* (a) extending it self longer on both Sides. 'Twas wall'd at both Ends toward the Hall or *Cavadium*, where they hung their Arms against a Wall on one Side, and did eat on the other. (b) There was also a *Plutens* (which we call *Tablinum*) a Place or Study, where the Pictures of their Ancestors, and their glorious Atchievements, were drawn or pour-tray'd: On the other Side was the Kitchen, from whence they came into a Porch built about the Hall, or *Cavadium*, which, because 'twas four-square, it was therefore surrounded with four *Porticus*, which may properly be called *Walks* or *Piazzas*.

There

There was within on every Side their Parlours, and against the Door, a Place designed for *Disputation* or Conference. If their Palaces were large and spacious, they had two or three Halls *Portico'd* about, after the same Manner, as *Plinius* describes them in the 2d Chapter of his 6th Book.

They had also Gardens and (x) *Tennis-Courts*, wherein they play'd at Ball, and had Baths and Rooms call'd *Triclinia*, which were Places to sup in, and very commodious for Feasting. They had also their *Fish-Ponds*, and several other Things of that Nature most artificially contriv'd, which Conveniences now-a-days we are for the most Part depriv'd of.

Because in the Primitive Times of the Church, many gave their Palaces to Monks; hence it was, that these Religious Fathers did build their Monasteries according to the Model of those Fabricks; as *Plinius* tells us, who saith also, that the (y) Ancients had no *Chimnies*, but heated their Water below, and dispos'd it so into certain Channells made through the middle of the Walls, that the Steam and Vapour was exhaled and breath'd out through certain Holes, made in their Rooms for that Purpose; and in the Summer Time, they convey'd Air into their Rooms through the same Passages. But I am apt to believe, that they had such *Chimnies* as we have, because we find the Words (z) *Vaporarium* and *Caminus* in the same Sense and Signification.

They floor'd their Parlours with (†) *Mosaick* Work, which was made of Marble broke into Bits and Fragments. *Pliny* tells us of a Man, who in one of these Pavements did with Pieces of

Marble, so artificially and lively express the Relicks and Scraps of a Supper (which were wont to be swept out) that the Room seem'd never to be cleans'd, and the Offal that was represented, look'd like real Bones, Parings, and such like Refuse cast upon the Ground. There were two Doves which seem'd to drink out of the same Vessel, the one darkning the Water with the Shadow of its Head. This kind of Work call'd *Mosaick*, is frequently to be seen in ancient Buildings; they were formerly stil'd *Lithostrota*, i. e. Places pav'd with Square Stone, as *Pliny* tells us in the 25th Chapter of his 36th Book.

Their Houses for the most Part, were not contiguous, there being betwixt them their Sinks, or narrow Passages. They were *Pyramidal* in their Front, and rising up (as it were) into a Cone made an handsome Frontispiece. From whence our modern Architects copied out the Beauties of Gates and Windows. And these separated Houses, that stood at some Distance one from another, were call'd *Insulae*, but those whose Eves dropt into the High-way, and were built in Fashion of a Tortoise were call'd *Domus*, and these were the most Magnificent and Stately. Wherefore *Pub. Victor* tells us, that in the Days of *Arcadius* and *Honorius*, there were in *Rome* 4662 of these *Insulae*, and 1780 of those call'd *Domus*.

Their Gates were studded with Nails of the brightest Iron after the *Quincuncian* Manner, as the *Latins* term it. These Nails were oft rubb'd according to that of *Plautus* in *Afinaria*, [*Jussine in splendorem dari has Bullas Foribus nostris?*] i. e. Did I bid thee to brighten these Iron Bosses

Bosses or Nails upon the Door? They were open'd both Ways according to that of *Virgil* in the 4th *Aeneid*.---*Concedunt testis bipatentibus*, and were generally shut, as may be gather'd from *Plautus*, *Terence*, and *Plutarch* in the Life of *Publicola*.

(b) The Gates of great Persons open'd outwardly, the Door being thrown into the publick Street, which before it was open'd, there rung a Bell, to prevent any Offence to Passengers before it, as *Plutarch* tells us, in the Life of *Publicola*, and *Pliny* in the 36th Chapter of his 15th Book.

Note, This appears to have been in the meaner Sort of Houses as well as greater. In *Terence*, the Persons that come out, knock at the Doors.

The C O M M E N T A R Y.

That elegant *Buildings* do grace our *Towns*, and that handsome *Dwellings* adorn our *Cities*, is a Thing so manifest, that we may spare Pains to evidence the Matter. But these *Beauties* are owing to Skill in Architecture, which not only *ennobles* both our Publick and Private Edifices with *Stateliness* and *Magnificence*, but with *Pomp* and *Ostentation*; and with stupendous Cost, hath rais'd those Seven *Prodigious Structures*, which the World admires, as the only *Wonders* of Humane Industry: Wherefore, this Art may justly be styl'd the *Ornament* of the Universe. For what City or Town, what Castle or Tower can boast any Excellency, without the Assistance of this noble Science.

Till Building was found out, Men liv'd at first like wild Beasts, in Caves and Dens, and fed on Fruit, and Roots of the Earth; but being

once sensible of the necessary Use of Fire against the vehement Extremity of Cold ; some began to edify Cottages of Boughs and Trees, and others dug Caves in the Mountains ; and by often experiencing such Means, they attain'd to a great Perfection in Building with Walls, which they got up with long Props, and wound them about with small Rods, and so daub'd them : And to keep out the Storms, they cover'd them with Reeds, Boughs or Fen Sedges.

Thus in process of Time, they came to the Art of BUILDING, which (as *Diodorus* saith) is ascrib'd to *Pallas* : But we are rather to believe, that either *Cain*, or *Jubal* the Son of *Lamech* found out this Art.

(w) [*There was also a Pluteus, &c. where the Pictures of their Ancestors, &c.*]

Pluteus is properly taken for a Desk and Figuratively for a Study, or the Books in it. A Manuscript Commentary on the 2d Satire of *Juvenal* takes it in the first Sense, telling us that anciently they were wont to draw the Pictures of Learned Men upon their Desks, whereon they writ. The *Scholiast* takes it according to the second for a Study.

But the whole Difficulty may be remov'd, by taking Notice of the Custom of the *Romans*, who ordered several Sorts of Images, into several Places. The first of which was before their *Gates*, where they plac'd the Images of their Ancestors. The second was in their *Halls*, as in a conspicuous Part of their Houses ; and here they set the like Statues, but curiously wrought in Wax. The Third was in their *Chambers*, where they placed their *Lares*, then the Images of those *Friends*, who were most dear unto them,

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as also the Deities which had the Care of the Marriage-Bed.

The Fourth Place, was their *Pinacotheca*; by the Comparison of the Use, we may call it a Gallery of Pictures, and in this they placed the Representations of their *Gods* and *Heroes*, and likewise painted *Fables* and *Histories*. The Fifth and Last was their *Study*, wherein they kept the Images of *learned Men*. Some are of Opinion, that *Plutens* signifies *Pinacotheca*; but that cannot be: For since the Images of learned Men were kept only in their *Studies*, and not in their *Galleries*; and that *Plutens* according to themselves, signifies the *Place*, where such Images are kept; it follows, that *Plutens* here can't signify *Pinacotheca*, but *Bibliotheca*. *Plutens* may conveniently be taken for a Study, or the Books in it, the Figure and the Sense bearing both.

Those *Romans*, who were famous for the Glory and Nobility of their Ancestry, drew the Pictures of their Progenitors in *full Proportion*, that preserving the Line and Series of their Pedigree, and representing every Man's *Virtue* together with his *Image*, they might imitate and transcribe those excellent Copies. Every Parent had these Ornaments and *Statues*, that every one might read in his own Figure his glorious *Achievements*, and the *Honour* and *Reputation* he had reflected on the Publick.

These *Representatives* of the Deceased were laid in the most *eminent* Places of their Dwellings, and were carried about in little wooden houses, or *Models* of Buildings, which at Publick Solemnities, they did at once both *open* and *adorn*, as *Polybius* informs in the 51st chapter of his Sixth Book.

(x) [*Tennis-Courts, Sphæristeria*]

These were Places, wherein the Ancients were wont to play at *Ball*, in which Recreation they took much Delight, as appears from the Epistles of *Sidonius Apollinaris*. There were three sorts of Balls.

(1.) *Harpasta*, which we *English* a *Foot-Ball*, this being laid in the middle, two young Men did violently contend, which should drive it through the others Goal. (2.) *Pila*, which signifies a distinct kind of Ball, so call'd from the *Hair* it was stuffed with. (3.) *Tellis*, a light kind of *Ball*, so call'd, because fill'd with a *Bladder*, wherewith both old Men and Children were wont to Play. (4.) *Trigonalis*, the Reason of which Name, is taken from the Form of the *Tennis Court*, which was *Triangular*.

Near these *Tennis Courts* were their *Dicing-Houses*, where the Gamblers refresh'd themselves, when weary with Ball-Playing. And hence it is, that their *Sphæristeria* do signify a round Place in their *Baths*, which were design'd by the Ancients for *Frictions* or Rubbings, and several other Exercises, which *Suetonius* mentions in the Life of *Vespasian*.

(y) [*Who tells us also that the Ancients had no Chimnies, &c.*]

Here we seem to have a Description of an *Helio-caminus*, i. e. a *Soller* set in a Sunny-Place to receive the Heat of the Sun, which *Budæus* calls *Solar Furnace*: For the better understanding of this, you must know that the Ancients had their *Zete*, i. e. little Chambers with Windows on three Sides to receive the Heat of the Sun, and these they call'd *Helio-camini*, q. d. *Stoves* of the Sun.

They were certain Places in several Parts of the House, whereunto the Fumes of Water
either

(either hot or cold) sprinkled on the Floor, did ascend and rise through certain Pipes or Passages (call'd *Tubuli*) either to warm or cool the Room, according as the Season of the Year required. They are not now in Use, but were very much formerly.

(z) [*Because we meet with the Words Vaporarium and Caminus, &c.*]

The Word *Vaporarium* occurs in Cicero's Epistle to Quintus Fr. and Papinius Statius makes mention of *Caminus*,

----- *Siculis an conformata caminis*
Effigies lassum Steropen, Brontenque reliquit.
[*Cavadium.*]

I am at a Loss how to translate this Word, we having nothing commonly in our Houses to answer it. Though it be call'd *Aula*, Yet it was not properly an Hall, which in all our great Houses is the first Room, whereas this was an inner Apartment, as appears by the Name, which is writ by some *Cava Edium*; it seems to have been a Chamber of State, where they received their Visits.

Sidonius Apollinaris elegantly describes a Chimney, when he saith,

We passed into the Winter Dining-Room, which the Fire, quenched in the bending or crooked Chimney, had made black with Smoke.

So that hence may be confuted the Opinion of those, who held that the Ancients had no Chimneys, the Existence of which may also be proved, from these Words in Suetonius in the Life of Virellius.

Nec ante Praetorium rediit, quam flagrante trichinio ex conceptu Camini, &c. "When he
"return'd to the Praetorium, he found the
"Chimney of the Room he din'd in on Fire.
Which

Which is an Argument that they had Chimneys in their Chambers; but not the same with ours, which *Manutius* makes out in the 10th Epistle of his 7th Book *Ad Famil.* --- For that we call a Chimney, which, as a *Pipe* or *Gullet*, receives the aspiring Smoke, and conveys it safely out of the House: But those of our Ancestors were not made *hollow* within the Walls, as ours are, but were made in the middle of the Winter-Chamber. And therefore saith *Cato* (in the 18th Chap. *de re Rustica*.)

Focum purum circumversum, priusquam in cubitum eat, habeat. i. e. " Let him have a Fire
" round about him before he goes to Bed.

Which cannot be, if it lie within the Cavity of an hollow Wall. And when *Columella* tells us, That the Country-People were wont to Feast *circa Larem, Focumque Familiarem, i. e.* about the Fire, what can this mean, but that the Fire was in the middle of the Room, about which the Family did make Merry and Junket.

Chimneys of old had no *vent* for the Fire, and therefore they were much troubled with Smoke, unless they burnt Wood (as *Cato* taught them.) besinear'd or nointed with Lees of Oil, or set open their Windows. The Former was costly, and the Latter inconvenient in the Winter-Season. *Horace* when he saith,

--- *Lacrimoso non sine Fumo, i. e.*

" A Tear-fetching Smoke,

" Which vexeth Folk,

" And makes them cry, ---

demonstrates they had no Vents or Tunnels.

(a) [*Call'd Insulæ, &c.*]

The Word (*Insula*) doth not only denote a *Tract* of Earth surrounded with the Sea, but also

also an *House* that is separate from others, and adjoins not to the Neighbourhood by a common Wall: And herein it differs from *Domus*, which signifies contiguous and united Habitations.

Alciat tells us; out of *Cornelius Tacitus*, That seeing by Reason of frequent Fires, there were so many *Aqueducts* in the City, 'twas thought convenient by *Nero*, that the Water intercepted by private Persons, should for the better furnishing of several Places, flow out in common; and that their Houses should be inmur'd and compassed about, not with *Publick*, but with their own particular and *Private* Walls, wherein should be *Channels* for the conveying of Water for the quenching of Fire. And hence arose the Name *Insula*, which is not only safe from the Fury of Flames, but from the Violence and Rapine of *Thieves* too; in regard they cannot go on the Tiles from House to House.

The Buildings in *Babylon* were not continu'd, neither to themselves, nor to the Walls neither, but were all *Insulae*, and stood asunder. The Reason was Politick, *First*, To avoid the Fury of Fire; And *Secondly*, To undergo a Siege in War; for the Waste which lay between the Houses in a Time of a Leaguer, was sown with Corn, and the Increase was sufficient to support and maintain them.

(b) [*Their Doors open'd outwardly.*]

When they went out, they thrust the Door forward, knocking it with their Hands to give Notice to those that are without, to beware of being hurt by its sudden opening into the High-way publick. And to caution those that enter'd into the House, there was writ over the Gate in Capital Letters (*CAVE CANEM*) Take heed of the Dog: For there did not only

lie there a living Cur, but there was either painted or engraven the *Figure* of that Animal with that Inscription. And *Petronius* tells us, That in the House of *Trimalcio*, there was a huge Dog pictur'd o'er the Door in a Chain with the same *Matto*.

(†) [*Mosaic-Work.*]

'Tis an Antique kind of Work, compos'd of little square Pieces of *Marble*, gilded and colour'd, according to the Place they are to assume in the Figure or Ground; which set together, and (as it were) *imboss'd*, present an unexpressible Stateliness, and are of a marvellous Duration,

C H A P. VII.

Of Statues of Marble Fragments.

(c) THEY were wont to make Statues of several Pieces of Marble, so firmly compacted and join'd together, that they seem'd to be made of one entire Stone, and were the more esteem'd for it. The *Egyptians* were wont frequently to use them, and so did *Theodorus* the Engraver; But the *Gracians* were altogether ignorant of this Art, as *Diodorus Siculus* informs us.

The C O M M E N T A R Y.

(a) [*Statues of several Pieces of Marble, &c.*]

Cruſſæ are little Fragments or Pieces of Marble from whence marbled Walls are call'd *Cruſſati* --- *Incruſſare*, is to Parget or Plaiſter a Wall or Pavement, and *Incruſſations*, are the clothing of the ſame with a Marble Film or Surface. S. Mark's
in

in *Venice* is most exquisitely adorn'd with this kind of Plaster.

Pliny tells us, That one *Blamerra* a *Roman* Knight was the first that did cisel his House on the *Cochian* Mountain, with this Marble Crust; they were wont to slice their Marble into slender Pieces, and artificially to spread them upon the Wall for a Covering.

C H A P. VIII.

Of Cellars.

I Am of Opinion, That the Ancients had no Cellars under Ground, in regard they (*d*) set in Holes, made in the Ground, their Vessels that preserv'd their Wines, especially if they were weak and crazy; which had been a needless Thing, if they had had any such Cellars: Neither doth *Pliny* in the 21st Chapter of his 14th Book, where he speaks of Wine-Cellars, and the Way of making them, make any mention of their being under Ground; nor doth *Varronius* describe them to be after that Manner, which Place being so advantageous and necessary, could not well have been omitted. And we may gather from our Laws, that they digg'd Holes in the Earth to put their Vessels in.

And because we are speaking of Cellars, it will not be Foreign to the Matter in Hand, to observe that the Ancients did not put their Wines into wooden Vessels, such as we use, but into Earthenpots, which were very capacious, containing a Cart or Waggon-Load of Wine, *i. e.* about 120 *Amphora*: But their most generous and noble Liquors were expos'd and set in the

open

open Air, as *Pliny* informs us in the Fore-cited Place. None of them had such Vessels as are in use with us, except the Inhabitants of the *Alps*, but had instead of (*Dolla*) Tuns or Hogshheads, which they dug into the ground.

They made their Wines after this Manner: First they stamp their Grapes, and then put their Must or New-Wine into a great Vessel, (*f*) call'd *Laccus*; and afterwards, the Stalks together with the Hulls or Skins, they put into a Press, and the Residue of the New-Wine they squeez'd into the *Laccus*, as may be gather'd from *Ulpian. Varro* in the 54th Chapter of his 1st Book of Husbandry says, Some par'd off the Bunch and Stalks, and then squeez'd them, and to the pressed Skins, and Hulls of the Grapes, they (*g*) added Water, and this mixt Liquor they gave to their Labourers for Wine in Winter.

The C O M M E N T A R Y.

(*d*) [*Set under Ground their Vessels.*]

Suidas tells us, on the Word [*Laccus*] that the Athenians and Grecians made Trenches and Cavities under-ground, either round or Square; which they plaister'd and rough-cast, and then fill'd them with Wine, and these kind of Hollownesses they call'd *Lacchi*.

(*e*) [*Did not put their Wines into wooden, but Earthen Vessels.*]

These they smear'd over with Pitch, or with some kind of Plaister, lest the Vertue of the Wine should evaporate through the Pores of the Vessels, as it appears from *Horace*,

----- *Gracè quod ego ipse Testa,*
Conditum leni ----

And they mark'd them also with several Titles or Inscriptions, as you may see in the 5th Satyr of *Juvenal*.
--- *Cujus*

----- *Cujus Patriam, Titulumque Senectus
Delevit multa veteris Fuligine Teste.*

----- next Day,

“ He something Drinks, whose Age hath
took away,

“ The dusty Hogthead's Date and Climate---

From hence we may understand that of *Petronius* [There were brought *Vitrea Amphora* & *gypsata*] i. e. Vessels of Glass, and curiously plaster'd, whose Tops were covered with Pitch; whereupon was inscrib'd this following Title [*Falernum, Opimianum Annorum centum.*]

They were wont also to write on their Vessels the Names of the Consuls to shew the Antiquity and Age of their Wines, as is hinted by *Horace*,

*O Nata mecum Consulo Manlio
Testa, &c. ----*

(f) [*A Great Vessel called Laccus.*]

Budans saith *Laccus* was a Vessel that receiv'd the Must as it flow'd from the Wine-press, but erroneously and falsely; in regard (according to *Ulpian*) *Laccus* is the same with a Cistern of Wine, which was dug into the Earth, and was plaster'd on both Sides, both within and without. Neither did the Ancients use only this *Laccus* or Cistern for that Purpose, but they had also earthen Vessels whereon they heap'd up Earth for the Preservation of their Wines.

(g) [*They put water to the press'd Halls of the Grapes, &c.*]

Cato saith, this is to wash the Grapes, i. e. to make a thin Sort of Wine after the Grapes have been squeez'd, call'd *Lora*, which kind of Drink is call'd so by *Varro* in his fore-mentioned Chap. of Rustick Affairs. *Ulpian* terms it

Ac

Acinatum, which (according to some) is a Wine made of Grapes, hanging a long Time after the Vintage in the Winter Season. Others say, That Wine made of Grape-Stones, is a Liquor of *Verona*, of a most delicate Smell, and a pleasant Taste; of a Purple Colour, and inef-
fable Sweetness; of a thick Body, so that it seems to be a kind of *potable* Flesh or a *fleshy* *Porion*.

C H A P. IX.

Of Wrestling and Running Places.

THE Ancients built certain Places call'd *Palæstra* or *Stadia*, for the exercising of Youth in Wrestling, and Running; in Leaping and Shooting, and Fighting with Whorl-Batts. The Place for these Sports was a Square call'd (i) *Stadium*, because in compass about two *Stadia* or Furlongs, which is the 4th Part of a Mile.

It had within, three single *Portico's*; but the Fourth, which was Southern, was double to preserve the Inside from Winds and Tempests. Underneath this, there was an open Gate, which led into a large and a spacious Hall, surrounded with Seats, wherein *Philosophers* and *Rhetoricians* did sit and dispute, and this was call'd (k) *Exedra* or *Ephēbeum*, because young Men (call'd *Ephebi*) were instructed there; for the Ancients, being furnish'd but with a few Books, exercis'd themselves rather in Disputing, than Writing, as *Suidas* tells us.

This Place did somewhat resemble the *Chapter Houses* in Monasteries succeeded by our Schools; And this *Exedra* or Disputing-School, was a third Part longer than broad, as *Vitruius* tells us in the 2d Chapter of his 5th Book, and had on the right
and

and left Side *Concamerations* and Porches, Vaults or Walks very convenient and useful for the Baths.

There is a Place like this at *Pisa* call'd *Campo Sapio*, the Holy-Field; but 'tis not made altogether after that ancient Manner. Some think there were *Gymnasia* there, of which there were three in *Athen*, viz. the Academy, the *Lyceum*, and the *Cynesarges*, wherein Youth was exercis'd in Military Acts before any War.

The G. O. M. M. E. N. T. A. R. T.

(h) [Call'd *Palaestra*.]

The Greek Word (*Palaestra*) is by Use made Latin; 'tis deriv'd from *Πάλη*, *Luta*, i. e. Wrestling or Fighting, from the Word *παλλειν*; either because all the Members of the Body are shaken by striving, or because the Urn was mov'd before the Contest, in regard they always contended by Lot. *Palaestra* by Use came to signify the Place where these *Gymnastick* Exercises were performed. The Persons engag'd in them were call'd *Palestrici*.

The Spartan Virgins were wont in their Minority to engage naked in these kinds of Recreations; which Practice *Plato* was so far from censuring, that he thought it convenient not only for *Lasses*, but ancient Women, to encounter Men, that so they might learn to endure Hardship.

The *Laconians* were so taken with these Kinds of Sports that nothing pleas'd them more, than these *Gymnastick* Places; and instead of approving themselves good *Soldiers*, they only desired to be excellent *Wrestlers*. But *Augustus*, not liking that immodest Custom, forbade all Women even to see these Spectacles, much less did he allow them to play naked.

(i) [*Called Stadium.*]

You may call it a Place where Horses run, and where Wrestlers contend; deriv'd *and it shows, a Station*, from standing, because *Hercules*, having run o'er that Space in one Breath, stood still.

(k) [*They were called Exedrae.*]

Some think they were like the Cells of Monks, others tell us they were Places well furnish'd with Seats, whereon *Philosophers* and *Rhetoricians*, and other learned Men, were wont to sit to dispute and wrangle. *Cicero* tells us (in his 1st Book *De Natura Deorum*) that he sat discoursing in one of these Places.

(l) [*Gymnasia*]

Those Places were properly so call'd, which were appointed for *Wrestlers* to contend naked in. A Name (saith *Scaliger*) which doth not at all agree to Schools, it being a very inconvenient and incongruous Thing, to act naked in those sacred Societies: But with the good leave of so great a Man, saith the learned *Beckman*, the Mansions of the Muses, which we call Schools, were not called *Gymnasia*, from *nude*, naked, but from the Performance of hard and difficult *Exercises*, such as are the Encounters and Strivings of *Wrestlers*, who strip (like Mowers) to be more ready and nimble. The Directors of these Sports were called *Gymnasiarcha*, *Agonotheta*, or *Athlotheta*.

CHAP. X.

Of Baths.

(m) THE Baths at Rome were so rich and magnificent, that the very Ruins of their Walls so high and stately, struck all Spectators into Amazement. Wonder.

(n) The

Sect. II. Of the Pillars of Trajan, &c. 91

the City of *Rome*. I know not whether those two stately ones at *Rimini* are still standing or not, which had certainly been ruined, had not your Highness preserv'd them from the Teeth and Injury of Time and Weather.

The C O M M E N T A R Y.

Triumphal Arches were erected in Honour of those Conquerors, who had subdu'd foreign Cities, Provinces and Nations, and reduc'd them under the Power of the *Roman Empire*.

There were formerly at *Rome* thirty six, but now but six, as *Palladius* informs us in his *Roman Antiquities*. If we may give Credit to the Letters of *Melchior Mignez* dispatch'd from thence, there are in *Cantaon*, a City of *China*, above a thousand Triumphal Arches, as we have it from the Relation of *Simon Majolus*.

C H A P. XII.

Of the Pillars of Trajan and Antonine.

(o) THE Column of *Trajan* exceeds all Admiration; 'tis 120 Foot high, having within it a winding Pair of Stairs of 185 Steps that leads to the Top, where the Bones of *Trajan* are laid in the Repository of a golden Urn.

Without were (p) engraven the glorious *Exploits* achiev'd by the Emperour, in Figures, so artificially wrought, that they seem'd to be all of an equal Bigness, and indeed they did not really differ in *Magnitude*. There is another like these (q) erected in Honour of *Antoninus Pius*, which is still remaining. But there are no such Works done now in these Days.

The

The COMMENTARY.

(o) [*The Column of Trajan, &c.*]

These two Pillars are most famous Monuments, both adorn'd with Figures in *Basso Relievo*, ascending in spiral Lines from the Basis to the Capitals.

Pierius tells us in his Hieroglyphicks, that this Pillar of *Trajan* were 128 Foot high; to whose Top were 123 Stairs. That of *Antonine* was 161 Foot high, and ascended by 207 Steps, according to the Relation of the same Author. The former had 44 Windows, and the latter 56. *Trajan* never saw it; for returning from the War he had wag'd with the *Parthians*, he dy'd at *Sora*, a Town of *Seleucia*, whose Ashes were put into an Urn, and brought to *Rome*, and repositied in the Top of this stately Column, which was erected by the Senate of *Rome*, in Honour of that Emperour, and served for his Tomb; in the room of which, Pope *Sixtus V.* introduced a Statue of *St. Peter*, made of Copper gilt.

(p) [*Were engraven the glorious Exploits.*]

Pierius tells us in his Hieroglyphicks, that *Roman Columns* were not wont to be rais'd without some mystical Signification or other, and that in this respect they were not unlike the Inventions of the *Egyptians*; some being Monuments of Stability and Firmness, some of famous and noble Achievements, and others of Captivity, Reproach and Overthrow.

Petrus Ciacconius has written a learned Commentary on this Pillar, wherein he explains the History represented, by the Figures upon it.

(q) [*Rais'd in Honour of Antoninus Pius.*]

Palladius tells that this was 161 Foot high,
to

Sect. II. *Of the Mole of Adrian, &c.* 93

to the Top whereof were 207 Stairs; 'twas enlightned and adorn'd with 65 Windows. This Pillar, consisting of 28 Stones, was rais'd also by the Senate for *Antoninus Pius*, whose Statue was set upon the Top of it, but at present the Image of *St. Paul* takes its Place, being also made of Copper gilt, as well as that of *St. Peter*.

C H A P. XIII.

Of the Mole of Adrian, and the Tomb of Cestus.

THIS *Mole of Adrian*, erected for his Sepulchre, (r) was of so stupendous a Magnitude, that it seem'd (as it were) to be one of the Wonders of the World. 'Tis now the Seat of the Governour of the *Arsenal*, the Armory being there now, and is called the (s) Castle of *Saint Angelo*. 'Twas encompass'd about with several Columns, eighty whereof, or at least the greatest part of 'em, do support the Church of *St. Paul*; they are of solid Stone, and of an incredible Height and Weight.

Besides, it was adorn'd with 700 most exquisite Statues, and was gloriously surrounded with several Porticos; on the Top of it was to be seen the Statue of *Adrian* on Horseback.

Without the Church, is to be seen the Tomb of (u) *Cains Cestus*, built in Form of an entire Pyramid, though the adjacent Buildings were ruined and demolish'd. All which Things, though they were vain and superfluous, yet they shew such Stateliness and Magnificence.

that all our Follies cannot parallel their Majesty.

The COMMENTARY.

(r) [*Was of so stupendous a Magnitude, &c.*]

The Greatness of this Structure may be easily gather'd from hence; That when *Narses*, *Justinian's* General, had conquer'd the *Goths*, possessing *Rome*, and had sent the Keys of the City to the Emperour, he signify'd to him what Violence ought to be us'd for the Expulsion of the Enemy, in regard they were garrison'd in the *Mole of Adrian*.

(s) [*Call'd the Castle of Saint Angelo.*]

Because *St. Gregory*, in a solemn Procession during the Plague, saw an Angel on the Top of the *Mole of Adrian*, sheathing his Sword, to signify the Divine Anger was appeas'd. It was built in a round Figure, anciently of vast Stones, going up in three Rows or Stories, lesser and lesser till you come to the Top, where stood mounted that great *Pine-Apple* of Brass gilt, which we see now in the Garden of the *Belvedere*, round about it were set in the Wall great Marble Pillars, and round about the several Stories stood a World of Statues.

This *Mole* being found a strong Place, *Belisarius* put Men into it, to defend it against the *Goths*, and they defended themselves in it a long Time, by breaking the Statues in pieces, and throwing them upon the Heads of the *Goths* that besieg'd them. Since that Time, divers Popes have turn'd it into a formal Castle; *Boniface VIII*, *Alexander VI*, and *Urban VIII*, have render'd it a regular Fortification, with five strong Bastions,

ions, and a considerable Garrison is constantly kept in it.

(r) [*Erected for Adrian's Tomb.*]

This Structure was the Sepulchre of *Adrian*, and was of *Parian* Marble, most elaborately wrought, by the curious Industry of the most exquisite Artificers. But at a Siege of the City, either the *Ignorance* or *Impiety* of the Soldiers, defac'd the Workmanship of those admirable Statuaries, and did throw away like Rubbish those almost living Images, which deserv'd to be animated by a breathing Soul, or at least to be situated by *Prometheus's* Fire.

(u) [*The Sepulchre of Cestus.*]

This *Cestus* was *ex Epulonum Collegio*, i. e. One of the College of those that had the Over-sight of Feasts at Sacrifices, or had the devouring of those Banquets, which were set before the Gods in their *Lectisterniis*, in the Temple of *Jupiter Capitolinus*.

C H A P. XIV.

Of Obelisks.

There were at *Rome* six great (w) *Obelisks*, and 42 of a lesser Size; the bigger were brought from *Egypt*, where they were wont to be made, and are called in the *Italian* Tongue, *Aguglie*; they were twice as broad at bottom as they were at top.

The *Obelisk* of *Caesar* was invented and made for the *Distinction* of Hours, for (Gnomon-like) it pointed them out, as described upon the Earth cover'd with Marble, a *Ball* at Top increasing the Shadow, lest it should disappear and
vanish,

vanish, as *Pliny* tells us in the 10th Chap. of his 36th Book. And this was the Work of *Augustus*.

Obelisks were invented by *Egyptian Kings*. The first Founder of them was *Mitres*, who reign'd in *Heliopolis*, and said he was commanded in his Sleep so to do. Other Princes afterwards erected many, whereof some were 48, 80, and 90 Cubits long.

But the chiefest of them all, was that (x) built by *Ramises* (in whose Reign *Troy* was taken) which was 99 Foot long, and 4 Cubits broad; there were 200000 Men employ'd in the building of it. The King being about to raise it aloft, and fearing, lest the Engines should be too weak for its Weight, and for a greater tryal of the Artificer's Care, he bound his Son to the Top of it, that his Safety might conduce to the Elevation of it, by which Device he excited the Diligence of the Labourers, who rais'd it whole and entire, as *Pliny* tells us in the 9th Chap. of his 36th Book. The raising of it was more difficult than the making, and therefore on one of them at *Romé*, there is this *Distich* inscrib'd, to shew the Ingenuity in erecting of it.

*Si Lapis est, dic qua fuit arte levatus,
Sed si sint plures, dic ubi congeries.*

q.d. If that *Obelisk* be an entire Stone, how could it be rais'd? But if it consisted of many, shew us the Joints. But certain it is that it was hewn out of solid Stone.

The

The COMMENTARY.

(*) *Obelisks* are (as it were) Beams of Stone, which were less than *Pyramids*, and were four-square, downward, but shoot upward (Taper-like) into a slender Top. They may be call'd Broaches or Spires, and were huge Stones in *Egypt*, made from the bottom smaller and smaller, of a great Length, consecrated to the Sun, because they were long, like his Beams.

Isodorus tells us that they were consecrated to the Sun, they somewhat resembling his pointed Beams. Among the *Egyptians* they have their Name from a *Ray*, which is not a little unlike them, having such a kind of Form, when darted in at a Window. Touching their Variety and Excellency, see *Pliny*, in the 9th, 10th, and 11th Chap. of his 36th Book, and of their Shape and Figure. *Blondus*, in the 1st Book of his *Rom. Inſaur.* And *Polyd. Virg.* of their first Inventors, in the 11th Chap. of his 3d Book, *De Rer. Invent.*

(x) [*Built by Ramises.*]

This Fabrick was so stupendous, as that when King *Cambyſes* had sack'd and raz'd *Syene*, and the Flames had rambled to the Borders and the *Phylacteries* (as it were) of this *Obelisk*, he commanded the Fire to be extinguish'd, being struck with Admiration of so venerable a Pile. *Theophrastus* tells us, that among the *Egyptians*, in the Temple of *Jupiter*, there was an *Obelisk* made of 4 *Emeralds*, which was 40 Cubits long, four Cubits broad in one Place, and two in another.

But among all the *Obelisks* at *Rome*, that which stands before the Pope's Palace, and

St. Peter's Church, and which is call'd the *Vatican*, is seen not without the greatest Wonder and Amazement imaginable; it is made of the Stone *Ophites*, and was dedicated to *Julius Caesar*, whose Ashes are repositied in the Top of it. The Height of it is 170 Foot, besides the *Basis*, which is 37 Foot; 'tis 12 Foot broad towards the Bottom, and 8 Foot broad towards the Top. At first it stood on the left Side of the *Vatican*, in *Nero's Cirque*; but Pope *Sixtus V.* commanded it to be remov'd into a more eminent Place in the Middle of the Street, in the Year 1586. 'Twas the Work of *Dominic Fontano*, an Architect of *Coma*. And indeed Travellers tell us, that they know not whether they ought to admire most, the Boldness of the Architect, or the Curiosity of his Art, in removing a Stone of so incredible a Weight, without the least Flaw or Fracture. The bare Obelisk, without the *Basis*, is above 956148 Pound weight, besides the *Vectes*, *Repagula*, *Cingula*, *Harpagines*, *Ferrcas*, all requisite for the bracing so vast a Bulk, to facilitate its Motion. I say, besides all these, which amounted to *Decies centena millia quadraginta duo millia viginti quatuor libras* more.

[Other Princes afterward erected many.]

King *BOCHIS* set up four, every one of which was 48 Cubits long: And *Ptolomeus Philadelphus* made one at *Alexandria* of four Cubits, and *Pheron* set up two in the Temple of the Sun, of an hundred Cubits long, and four Cubits broad on this Occasion.

It happen'd that this King for some great Crime was struck blind, and continued so ten Years; and afterwards it was told him by Revelation in the City *Busis*, that he should receive

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ceive his Sight, if he washed his Eyes with the Water of a Woman that never lay with any Man but her Husband: He try'd his own Wife first, and then many others, till at last he received his Sight, and marry'd her by whose Urine it was heal'd, and caused all the others, with his first Wife, to be burnt. Afterward, for a Remembrance, he made his Oblation with the two aforesaid Obelisks in the Temple of the Sun. *Augustus Cæsar* brought two of these Broaches or Spires, to *Rome*, and set one in the great Tilt-yard, or Lists, call'd *Circus*, and the other he set up in the Field call'd *Campus Martius*.

C H A P. XV.

Of Egyptian Pyramids, and Labyrinth.

THIS expected also that we should say something of the *Egyptian* (*y*) *Pyramids*; there were four of them, the two bigger whereof are reckon'd among the seven Wonders of the World, they were square and broad at Bottom, but taper'd upward, into the *Conical* Slenderness of a pointed Diamond.

The largest is suppos'd to take up 8 Acres of Ground, every Side being 883 Foot long, the Square at the Top consisting of three Stones only, yet large enough for threescore Men to stand upon, ascended by (*yy*) 255 Steps, each Step above three Foot high, and of a Breadth proportionable. It had Eastward a Gate, thro' which there was a Declivity, which led into two

Chambers, wherein was a great and a little Tomb.

(2) There was no other reason for building these Structures, but mere *Vanity* and *Ostentation*, and to employ both Money and the People, to keep them from Idleness; there could be no other Cause besides this.

One of them was 20 Years a building, and that by three hundred and sixty thousand Men, continually employ'd and working upon it; who (as some report) consum'd only in Radishes, Garlick and Onions, 1800 Talents, which Sum is more than two hundred thousand Crowns. In the middle of its Bottom, there is a Pit 86 Cubits deep; 'tis a very great Wonder how they could carry their Stones to so prodigious a Height.

In the Lake of *Mæris*, the same Egyptian Kings made a (22) *Labyrinth*, in the Middle whereof were 37 Halls, according to the Number of the several *Præfectures* or Governments, wherein the *Præfects* or Deputy-Governours were buried. The Ways and Paths in it were long and *subterraneous*, crooked and *winding*, and lead to those several Apartments by Vaults and Passages under Ground, which were so intricate with Turnings, that whosoever went into them, could never extricate or wind himself out, and therefore 'twas called a *Labyrinth*.

It had a Gate of white *Parian* Marble, and when any one with a great deal of Weariness came to the end of these Walks, he was conveyed into a Portico, richly adorn'd with Pillars of *Porphry*, into which he ascended by 90 Stairs. From thence you might go into a Marble Room, most gloriously beautify'd with very fair Pictures,

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tures, and most exquisite *Statues*. The Passages within were all of Marble, and were *flag'd* and *arch'd* with most exquisite Stone; some Doors, when open'd, made a terrible Noise, like a Crack of Thunder.

There was adjoining to this *Labyrinth*, a large Pyramid 4 Acres broad, and 8 in Height, wherein lay interr'd the Founder of the *Labyrinth*. From hence *Dadalus* took the Pattern of his *Labyrinth* which he made in *Crete*, but he only imitated and transcribed (as it were) the hundredth part of it, as *Herodotus* and *Pliny* inform and tell us; for it fell as short of the Glories of this, as *Minos* was inferiour to *Psammiticus* in Power and Dignity.

(222.) *Porfena*, King of *Hetruria*, made a *Labyrinth* on purpose for his Sepulchre, which *Pliny*, out of *Varro*, describes to be admirable.

The C O M M E N T A R Y.

(y) [*The Egyptian Pyramids.*]

Pyramids were vast Heaps or Piles of Stone, which being broad at Bottom, did gradually taper into a Cone at Top. They are so called from *πῦρ*, which signifies a Flame of Fire, in regard of its Figure, broad below, and sharp upward.

By these the Ancients did express the Original of Things, and that formless Form taking Substance; for as *Pyramids* beginning at a Point, and the principal Height, by little and little, dilateth into all Parts; so *Nature* proceeding from one undividable Fountain (even the Divine Essence) receiveth Diversity of Forms, effused into several Kinds and Multitudes of Figures

gures, uniting all in the supream Head, from whence all Excellencies do proceed.

(2) [*There was no other Reason for building them, &c.*]

By these and the like Inventions they exhausted their Treasure, and employ'd the People, lest such infinite Wealth should corrupt Posterity, and dangerous *Idleness* should pamper the Subject into a Desire of *Innovation*. Besides, the Consideration of human Frailty, budding and blossoming, and withering in an Instant, prompted them to erect such magnificent Structures, in spite of Death, to give Eternity to their *Fame*. They erected such costly *Monuments*, not only out of a vain Ostentation, but out of an Opinion, that after the Dissolution of the corporeal Part, the Soul should survive; and after the Revolution of 36000 Years, should be reunited to the self same Body, restor'd again to its former State.

(22) [*Labyrinths.*]

Labyrinths and Mazes were certain intricate and winding Works, with many Entries and Doors, in such a manner, that if a Man was once got in, he could never get out, without the Guidance, or the perfect Conduct of a Clue of Thread. There were four of them that were very remarkable; the first was in *Egypt*, and was called by some the Palace of *Motherudes*, by others, the Sepulchre of *Mexes*. Some said it was built in Honour of the Sun, by King *Petefucus*, or by King *Teihoes*; and *Herodotus* will have it to be the common Tomb of the *Egyptian* Kings. This stood a little Way off from the Port of *Mirios*. The second was in *Crete*, made by *Dadalus*, at the Command of King *Minos*, wherein

wherein *Theſeus* of *Athens* ſlew the *Minotaur*. The 3d was in the Iſle of *Lemnos*, built by *Smilus Rhodius* and *Theodorus*, Carpenters of the ſame Country. The fourth in *Italy*, by *Porſena*, King of the *Heſtrurians*, who being reminded by his Age of his mortal Condition, built him a Tomb ſo ſtately and magnificent, that he exceeded the Vanity of all foreign Monarchs. it was made like a Labyrinth, which there was no getting out of, without the help of a Clue; it was built near *Cluſium*, all of ſquare Stone, and curiouſly vaulted. *Varro* was loth to give the Height of the Pyramids within it, though he hath deſcrib'd *Fastigiatum Opus*, and the brazen Bull at Top; from whence little Bells, hanging by Chains, and mov'd by the Wind, were wont to give a Sound at a pretty Diſtance. You may read of this in the 13th Chap. of the 36th Book of *Pliny*, and in the 2d Chap. of the 15th Book of *Chaffaneus* his Catalogue of the Glories of the World, Part 13, and the 75th Conſideration, but moſt largely in *Simon Majolus*, his 2d Colloq. of his 1 Tom. *Dier. Canic.*

(222) [*In the Lake of Moeris, the ſame Egyptian Kings made a Labyrinth, &c.*]

This Labyrinth was built by *Pſammiticus*, and contain'd within the Compaſs of one continu'd Wall, a thouſand Houſes, and twelve Royal Palaces, all cover'd with Marble, and had only one Entrance, but innumerable Turnings and Returnings; ſometimes one over another, and all in a manner *invious* to ſuch as were not well acquainted with them. The Buildings more under Ground than above, the *Marble Stones*, laid with ſuch Art, that neither *Wood* nor *Cement* was employ'd in any Part of the

Fabrick, the Chambers so dispos'd, that the Doors, upon their opening, did give a Report no leis terrible than a Clap of *Thunder*; the main Entrance all of white Marble, adorn'd with stately *Columns*, and most curious *Imagery*. The End at length being attained, a Pair of Stairs of 90 Steps conducted into a gallant *Portico*, supported with Pillars of *Theban Stone*, which was the Entrance into a fair and spacious Hall (the Places of their general Conventions) all of polish'd Marble, set out with the Statues of their Gods.

C H A P. XVI.

*Of Sphinx, Egyptian Thebes, and the
Seven Wonders of the World.*

(a) *Amasis*, an *Egyptian King*, fram'd out of one entire Stone, a *Sphinx*, which, as to its shape, was nothing else but an *Egyptian Cat*, which we call a *Marmoset*, or *Monkey*; 'twas 143 Foot long, and from the Navel to the Crown, 'twas 62 Foot high; the Circumference of its Head was 102 Foot. (aa) They say that King *Amasis* was interr'd in it.

1. (b) There was a famous Town in *Egypt*, called *Egyptian Thebes*, which *Homer* saith had 100 Gates, which is to be understood of its Walls, and not of its *Temples* and publick Buildings; 'twas 17 Miles about, and 10 long. Without the City there was 100 *Stables*, each of which would hold 200 *Horses*; within it were subterraneous *Vaults* or Passages under Ground, through which their Kings were wont

to

to lead their Armies, without the Knowledge of the Inhabitants: The Houses of that City had 4 or 5 Floors; it was wonderfully adorn'd with most beautiful Temples, one whereof was a Mile and a half in Compass, whose Wall (if we may believe *Diodorus*) was 24 Foot wide, and 70 Foot high; it now scarce consists of 300 Houses. Upon this Occasion we cannot omit,

2. (c) The Temple of *Diana*, Goddess of the *Ephesians*, which was building 220 Years by all *Asia*; it was 425 Foot long, and 224 broad; it had 127 Pillars, each of which was 60 Foot high, built by so many several Kings. They were all of one entire Stone, thirty six whereof were wrought and carv'd, not to mention and speak of a thousand other Ornaments; and therefore it was reckon'd one of the seven Wonders of the World.

3. (d) To this we may add the third Wonder of the Universe, which was the *Mausoleum*, built by *Artemisia*, the Wife of *Mausolus*, King of *Caria*, on purpose for his Tomb or Sepulchre, whose Effigies I saw on a silver Medal at *Padua*. This Structure was quadrangular, and of very fine Marble; 'twas 211 Foot about, and 25 Cubits high, and was encompass'd or surrounded with 36 Columns. There was no Ascent, but by Steps placed in the Corners of the Walls, rising in height like so many Wings, in which Places, as also in the Middle, were most exquisite and noble Statues; and in the Top a Marble Chariot.

4. (e) The Fourth Wonder of the World, were the Walls of *Babylon*, which were 60 Miles and 200 Foot high, and 50 broad, every Foot

being three Fingers larger than the *Roman Foot*, which contain'd 16 Digits.

5. The fifth Miracle was the (f) *Colossus* at *Rhodes*, that vast Image of the Sun made of Brass, which was 70 Cubits high, whose *Fingers* were bigger than most Statues, but its *Thumbs* were of that *Thickness*, that they could not be embrac'd by any Man's Arms; 'twas 12 Years in finishing, at the Expence of 300 Talents, which amounts to an hundred and eighty thousand Crowns.

6. The sixth Prodigy of the World, was the Image of *Olympian Jove*, carv'd by *Phidias*, which was so exquisitely done, that its Beauty surpass'd all possible Imitation.

7. The seventh was the *Capitol* at *Rome*, which was so magnificent a Structure, that 100000 Crowns were spent at the laying of the Foundation, and as *Plutarch* writes, it was wonderfully enrich'd with an infinite Mass of Gold. Some substitute in the room of this, the Palace of *Cyrus*, King of the *Medes*, which had Marble Floors inlay'd with Gold.

There were also at *Rome* five *Naumachia*, which were *Lakes* fill'd with Water, made on purpose for *Sea-Fights*. But these are now quite out of Use.

(g) There are now a days but a few Statues in publick, but there were many at *Rome*, both of Brass and Gold. There were 84 Ivory ones, and 124 *Equestrian*. There were 23 *Colossus's* of Brass, and 37 of Marble, but that at *Rhodes* exceeded them all in Bigness.

The

The COMMENTARY.

(a) [*Sphinx.*]

Pliny makes mention of this Stony *Sphinx*, in the 12th Chap. of his 36th Book. *Verres* had one of *Corinthian* Brass, and therefore when he told *Cicero* that he did not understand his Riddle, he made answer and said [You ought to apprehend it, for you have a *Sphinx* at Home.] When it came first to *Thebes*, it propos'd Riddles to Passengers, and destroyed all those that could not unfold them.

It had an Head and Face like a Girl, Wings like a Bird, the Body of a Dog, the Paws of a Lion, and the Tail of a Dragon. 'Twas an Hieroglyphick of a Whore, who under a human Head, makes a shew of Meekness, but in her Lion-like Body, discovers her Fierceness and Cruelty to her Paramours.

(aa) [They say that King *Amasis* was interr'd in it.]

So saith *Pliny*; I imagine this *Sphinx* to be a Sepulchre, but we cannot understand how it belong'd to *Amasis*, for all the Records and Traditions of this *Sphinx* are lost. That it is a Tomb, may appear, 1. By its Situation, which is in a Place, which was in former Ages a Burying-place, and near the Pyramids and mortuary *Mansions*. 2. It is to be imagin'd that it was a Sepulchre from its building. In the hinder Part is a Cave under Ground, of a Bigness answerable to that of the Head, into which the curious have look'd, by an Entrance that leads into it; so that it could serve to no other Purpose but to keep a dead Corps in; as Travellers inform us.

(b) [Egyptian Thebes.]

There were other Cities of that Name, but this of *Thebes*, so famous and eminent for 100 *Gates*, leaves Posterity to guess at its wonderful *Greatness*. *Herodotus* tells us, that it was 140 Furlongs in compass. It was a noble City, the *Queen* of all others, being richly beautify'd with magnificent Buildings, both publick and private. *Pomponius Mela* prefers it above all the most celebrated Towns of *Egypt*.

(c) [Temple of Diana.]

'Tis commonly reported to have been built by all the Cities of *Asia*, as *Livy* tells us in the first Book of his *Decads*. Some say it was built by the *Amazons*, when they came out of *Scythia*, and possess'd *Asia*. But though Authors differ about its *Founder*, yet certain it is that it was a magnificent and stately Pile, built in a *Fenny Place*, on purpose that it might not be obnoxious to *Earthquakes*.

(d) [Mausolæum.]

So was call'd the Tomb or Sepulchre of *Mausolus*, King of *Caria*, built by *Artemisia* his Queen, who so passionately doated on her dear Husband, that her Love exceeded all *Poetry* and *Romance*, and was an Instance surpassing all human *Affection*; for when he was dead, she drank his Ashes, which she had temper'd and mingled with Perfumes and with Water, and is said to have done many other Things, which were very great Arguments of her violent Passion. To preserve his Memory, she built that noble and stupendous *Monument*, most deservedly reckoned one of the *Wonders* of the World. She instituted also in Honour of his Name, certain *Games* of Activity, and munificently rewarded the *Persons*

sons engaged in those Sports and Exercises. And though she dy'd before the Structure was finish'd, yet the *Builders* proceeded to compleat the Work, as a noble Instance of their Art and Glory. *Martial* means this famous Fabrick, when he sings in his Epigrams,

*Aere nec vacuo pendentia Mausolae,
Laudibus immodicis Cares ad astra ferant.*

And *Propertius* mentions it in his second Book.

*Nec Mausolae dives Fortuna Sepulchri,
Mortis ab extrema condicione vacat.*

All the stately and magnificent Tombs and Monuments of Kings and Emperours, are called *Mausolae*, from this famous Sepulchre; for so are *Suetonius* and others to be understood, whenever they name and mention that Word.

Though we cannot pretend to the Divine *Raptures* the afore-cited Poets are inspir'd with, yet we hope the Reader will kindly accept of an ingenious *Strain* of a Friend of mine, whose Muse sings thus.

On *Artemisia*, her drinking her Husband's
Ashes.

*Invida Mors! frustra cupidos disjungis Amantes,
Extincto vivet Fax Hymenæa rogo.
Dum videt ardentem busto Regina maritum,
Crudeles sentit vel magis ipsa Focos.
Corda simul Geminis Amor, & Dolor ignibus urunt;
Frustra oculus vanas fundit ineptus aquas.*

Membra

*Membra sui vivunt cordis monumenta sepulti,
Componit cineres pectoris urna duos.*

*Quis putat? (hos nodus arctior alligat) unum
Nunc binis corpus, mens fuit una prius.*

*Post haustum hunc Frugi poteris, Cleopatra, videri,
Cum biberis gemmam Luxuriosa tuam.*

*Inspidum Nectar (quanquam immortale fuisse,)
Gustatus fuerit sc Cinis iste prius.*

*Nectare non opus est, Conjux hoc mora sepulchri
Non finit uxorem posse perire suam.*

*Morte O felicem Mausolum! tale Sepulchrum,
Quis nollet vite prapossuisse sua?*

- “ Death strives in vain to separate those Loves,
“ Whose Flame the Funeral Pile surviving proves.
“ The Husband’s Ashes seeth the Royal Daine,
“ And kindles in her self the fiercer Flame.
“ Her Heart, where Love and Sorrow burn and
 rage,
“ All Tears in vain, endeavour to assuage.
“ And yet survives, to be *Mausolus*’ Tomb;
“ Her Heart, his Ashes, thus lye in one Womb.
“ ’Tis very strange! That they, who always were
“ One Soul, thus likewise now one Body are.
“ Here (*Cleopatra*!) thou might’st frugal prove,
“ Thou drink’st thy Jewel, this her royal Love.
“ Nectar less sprightly, less Divine can’t be,
“ Dear Ashes! than when tasted after thee.
“ No need of Nectar here; such Obsequies,
“ The Widow’s Name perpetuate with the Skies.
“ Happy in Death, *Mausolus*! Who’d not have
“ Death before Life in self, for such a Grave?
“ Those Souls are happy, doubly, trebly blest,
“ Who in Elysium, and such Ashes rest.
“ While some in Pyramids (*Mausolus*!) lye,
“ This *Mausoleum* is thy Property.

(c) [Waller]

(e) [*Walls of Babylon.*]

Semiramis, in Imitation of the City *Nina*, erected by her Husband *Ninus*, built, or at least repaired, this of *Babylon*, after his Death, and encompass'd it about with a Brick Wall, cemented with Rosin, Pitch and Sand.

These Walls were of that Breadth and Thickness, that Coaches might meet and pass by upon them, as *Propertius* tells us in his third Book. They were adorn'd with 300 Towers, and would have had certainly more, but that the Fens on one Side were instead of a Wall; they had 100 Gates all of Brass, and were built by an hundred and thirty thousand Men.

(f) [*Colosse at Rhodes.*]

This vast Colosse of Brass, was erected in Honour of the Sun, by *Chares of Lyndus*, the Disciple of *Lysippus*; it was 70 Cubits high, and that of so huge Proportion, that every Finger was as big as an ordinary Statue, and its Thumb so great, that it could not be fathom'd.

It was twelve Years in building, and about threescore and six after thrown down by an Earthquake (which terribly shook the whole Island) prophesied of by *Sibyl*; the Pieces whereof made wonderful Ruptures in the Earth; and another Wonder it was, to see the Masses of Stones contain'd therein, whereby the Workmen had strengthened it against Strefs of Weather. 'Tis said, the Brass of it loaded 900 Camels.

(g) [*A few Statues now in use.*]

So *Livy* tells us, for when a Statue was dedicated to *Caius Memenius*, for subduing and quelling the ancient Latins, that Author informs us, that that very Thing was a Rarity in that Age.

There

There was no other end in erecting them, than that the *Honour* of him, to whom they were devoted, should out-shine the *Glory* of all other Mortals.

[*At Rome five Naumachiz.*]

Minos made the first Naval Fight for Honour and Profit; Merchandize being instituted to furnish Men with Necessaries, by way of Exchange. But after Money was coin'd, it was made use of for private Wealth.

C H A P. XVII.

Of the Shining Pyropus.

HAVING spoken something of *Buildings* and *Statues*, we proceed now to the Consideration of other Arts, and first of the *Pyropus*: Which was commonly (*b*) suppos'd to be a *Carbuncle*, but falsely. For *Pliny* tells us, in the 8th Chap. of his 34th Book, that it was a kind of *Cyprian* Brasis, whereto were added six Scruples of *Gold*, and then being drawn out into a thin *Leaf*, was laid upon the Tops of Pyramids and Towers, where, when struck by the *Sun-Beams*, it glitter'd and darted a Lustre like Fire, and therefore it was called *Pyropus*, because it resembles the shining of that Element; but that Art is now utterly lost.

The same may be said also of (*i*) *Electrum*, which is a Mixture of *Gold*, and a fifth Part of *Silver*, and therefore it cast a greater Lustre than *Gold*, and (as *Homer* informs us) the Ancients were wont generally with this to adorn their Floors.

The

The COMMENTARY.

(b) [*Suppos'd to be a Carbuncle.*]

But not really, for *Pliny* tells us in the Place afore-cited, that it is Ductile and gilt Brass, which when thinn'd, and drawn out into slender *Plates*, and tinctur'd with a Bull's Gall, will look like Gold.

(i) [*Electrum, a Mixture.*]

Suidas tells us, that if there be above a fifth part of Silver, it will resist the Anvil ; and he saith moreover, that it was a Compound of Gold, Glass and Stone, blended together, and that it shone with a most glorious Colour.

It was in great request among the Ancients, if we may believe *Homer*, who tells us that *Mene-laus's* Palace glitter'd with Gold and Silver, with Ivory and this *Electrum*. In *Minerva's* Temple at *Lindos*, in the Isle of *Rhodes*, *Helena* consecrated a Cup as big as her Breast, made of this *Electrum*.

Authors make mention not only of *Vessels*, but of *Money* and *Rings*, made of this Matter, which shines most gloriously by Candle-light ; and, if true and genuine, it discovers Poison, by a *Rain-bow* in the Cup, just like that which appears in the Heavens ; and besides all this, it makes a Noise like Fire, if we may believe *Pliny* in the above-mentioned Quotation.

C H A P. XVIII.
Of Corinthian Brass.

IN the Year 608, after the building of *Rome*, *Memmius* having taken *Corinth*, a noble City in the *Isthmus* of *Greece*, did destroy it by Fire; in which Conflagration it happen'd, that Gold, Silver and Brass, were all melted down and mingled together. This Mixture and Compound being found after the Fire, and appearing a very beautiful and glorious Body, there were several kinds of Vessels, as Candlesticks and the like made of it, most curiously wrought, and artificially engraven. (k) And these were called *Corinthian*, because that Mixture was first found in that City.

There were three sorts of it; the first was white, consisting mostly of *Silver*, the second of *Gold*, and the third an equal Proportion of all three. This kind of Metal is now quite lost, and so is the use of *Brazen Gates*, which were to be seen in Temples; and *Pliny* tells us in the 2d Chap. of his 34th Book, that *Sp. Carvilius* the Quæstor, among other Crimes, alledg'd this against *Camillus*, that he had in his House *Brazen Doors*. He adds further, in the 3d Chap. of the same Book, that their Parlours, or Supping-Rooms, their Benches and Seats, their Tables and Presses, &c. were all made of Brass, and also the Tops of Pillars, as may be seen on the Columns of the *Pantheon* at this Day at *Rome*.

They had also in their Temples *Brazen Lamps*, made in Fashion and Form like a bearing *Apple-tree*. Lastly, there were an innumerable Com-
pany

pany of Statues made of this kind of Metal.

The COMMENTARY.

(k) [*And these were call'd Corinthian.*]

Corinthian Vessels are styl'd by *Virgil*, *Ephyreia*, because *Corinth* was formerly call'd *Ephyra*. And in what great Esteem they were had, *Perotus* tells us out of many Histories.

Suetonius informs us in the Life of *Tiberius*, that they were mightily priz'd; and he saith that *Augustus* was observ'd to be very desirous of, and extreainly to covet all manner of precious Furniture, and all these *Corinthian* Utensils; for in the time of his Proscription, this Sarcasus was writ under his Statue.

Pater Argentarius, Ego Corinthianus.

"To deal in Money was my Father's Fate,
"And mine as much in rich *Corinthian* Plate.

Because it was suppos'd that many were soisted into the Number of the proscrib'd, merely for the sake of their Plate only.

C H A P. XV.

Of Incombustible Oil.

THE Ancients were wont to prepare a kind of Oil, which was *incombustible*, and would not be consum'd by Fire. Such hath been seen in our Age, in the time of *Paul III*, which was found in the Sepulchre of *Tullia*, *Cicero's* Daughter, which burn'd about 1550 Years, and at length was extinguish'd upon the Admission of fresh Air.

The

The COMMENTARY.

(1) [*In the Sepulchre of Tullia.*]

There was such another found in the Tomb of *Max. Olybius*, near *Padua*, which had burnt about 500 Years. *Naptha* is somewhat of the same Nature, which flows about *Babylon* like liquid *Birumen*, and is a sulphurous kind of Substance, so extremely hot, that it burns every thing it sticks to, and defies to be quench'd by any Moisture whatever.

C H A P. XX.

Of Ductile Glass.

IT is reported, that in the Time of *Tiberius*, there was Glass found out so rarely temper'd, that it might be made *ductile* and flexible like Paper; and also that the Author of this Invention was put to Death, because having repair'd at *Rome* a magnificent Palace that was ready to fall, and being paid by *Tiberius*, and forbidden to come any more in his Sight; he having found out the way of making Glass *malleable*, came again into his Presence, to shew his Art, expecting from the Emperour (as *Dio* writes) a great Reward.

But *Pliny* tells us in the 26th Chap. of his 36th Book, that the whole Shop of this Artist was ruinated and demolish'd, to prevent the (*m*) lessening and bringing down the Price of Silver and Gold. Some think it was done by the Malice of *Tiberius*, who had no Kindness for virtuous and ingenious Men.

The

The C O M M E N T A R Y.

That which our Author saith concerning this Artizan, *Dio* relates (in the 57th Book of his History) after this manner; who tells us, that when the Great *Portico* at *Rome* lean'd all on one Side, it was after a wonderful manner set up-right again; for a certain *Architect* (his Name is not known, for *Tiberius* so envy'd his Art, that he forbad it to be registred) having so fix'd the Foundations, as to render them immoveable, did, by the Strength and Force of Men and Engines, restore it again to its former Posture.

Tiberius wonder'd at the Thing, and so much envy'd the Artist, that after he had rewarded him, he banish'd him the City. But coming afterward again to the Prince, he threw away a Glafs on purpose, and brake it, and then took it up again, and made it as whole as ever, hoping thereby to obtain his Pardon; but he misfed of his Aim, being presently commanded to be put to death.

Petronius tells us, that there was a certain *Smith*, that made *Vessels* of *Glafs*, as strong and durable, as those that were made of *Gold* and *Silver*; wherefore having made a *Vial* of the same Materials, very fine and curious, he presents it to *Tiberius*. The *Gift* is commended, the *Artist* admir'd, the *Devotion* of the Donor is kindly accepted.

And now the *Smith*, to turn the *Wonder* of the Spectators into Astonishment and Amazement, and the better to recommend himself to the Prince's Favour, took a Glafs *Vial*, and dash'd it against the Pavement with all his Might, so that if it had been *Brass*, it must needs have

been broken. *Cesar* did not so much wonder or fear at the Fact. The *Smith* took up the *Vial* not broken, but bruised a little, as if it had been some *Metal* in the Form of *Glass*, and afterwards he mended it with a Hammer, as if it had been some *Tinker* cobbling a piece of *Brass*. When he had done this *miraculous* piece of Work, the *Man* was puff'd up into such a Conceit of himself that he presently fancy'd that he should be snatch'd into Heaven, and should converse with no less than *Jupiter* himself, in regard he gain'd the Smiles of the Emperour, and had deserv'd (as he imagin'd) the Applause of all. But it fell out otherwise; for *Cesar* enquiring whether any body else knew the Art besides him, and being answer'd, No; commanded this Fellow to be immediately beheaded, alledging, that if the Skill and Ingenuity was rewarded and encouraged, it would bring down the Price of Gold and Silver, and make those Metals as vile as Dirt.

(m) [*Lessen the Value of Gold.*]

For the use of *Drinking Glasses* hath banish'd Gold and Silver almost quite out of Doors. And therefore the Emperour *Gallienus* could not endure the Sight of a Glass, saying, *there was nothing in the World more vile and common.*

C H A P. XXI.

Of Paper.

THE Paper of the Ancients is quite out of use, since the Invention of ours, which is made with less Charge, and infinite more Profit

in regard 'tis the Product of old Rags ground in a Mill.

Papyrus (from whence comes our Word *Paper*) was a kind of a Bulrush, whose Threads or Strings (like so many Gristles) being pick'd out with a Needle, it was divided into Leaves or Sheets.

Add this was the Paper of the Ancients, which was first invented in *Egypt*, in the Time of *Alexander* the Great, and was called *Charta*, from the Name of that Region. *Pliny* tells us, that their *Sailing Vessels* were made of this Paper.

See the Commentary in the Chapter *De Charta*, in the Second Book.

C H A P. XXII.

Of the Four and Five-Oar'd Galleys of the Ancients, call'd Quadriremes, and Quinqueremes.

HAVING made mention of Ships, it may not be improper to say something of that, which never had its Fellow; we mean that which was made by *Ptolomæus Philopater*, with Banks of Oars, and was 280 Cubits long, and 48 high, from the bottom of the Hold to the upper Deck. Besides, in the Hold; and on the Deck, it was capable of containing about 3000 Men, as *Plutarch* relates in the Life of *Demetrius*. It represented a City swimming on the Ocean, and was beautify'd and adorn'd with several Gardens (n).

I am apt to believe, there is none now a day like it in the least, since no *Four-ear'd*, much less *Five-ear'd* Vessels can be made now, so as to be swift Sailers, and to be serviceable to us and therefore we disuse them, and lay them aside: But the Ancients had the right way of making them, and did very much employ them to the very great Damage and Loss of their Enemies. They built also such kinds of Ships which were mov'd at once both by *Sails* and *Oars*, as many Authors inform us, but more especially *Virgil*, in the first, third, and fifth Book of his *Æneids*. Ours are waisted only by Sails and therefore stand still, and move not in a Calm.

I saw also the Pictures of some Ships, called (o) *Liburna*, which had three *Wheels* on both Sides without, touching the Water, each consisting of eight Spokes, jetting out from the Wheel about an Hand's breadth, and *six Oxen within*, which by turning an Engine stirr'd the Wheels, whose Fellys driving the Water backward, mov'd the *Liburnians* with such a Force, that no *three ear'd* Gally was able to resist them.

Vitruvius makes mention of a certain kind of *Cart*, which shew'd how many Miles it travel'd in an Hour; 'twas mov'd (like our Clocks) by Wheels, which every Hour cast a *Stone* into a *Basin*; but the Frequency of the latter hath render'd quite useless the Invention of the former; just as *Cannons* and *Pistols* have eclipsed the Glory of the famous *Instruments*, and military *Engines* in use among the Ancients, which being unnecessary, and now quite laid aside, it will not be pertinent to speak of.

The

THE COMMENTARY.

(n) [*Beautify'd with Gardens.*]

Suetonius tells us in the Life of *Caligula*, that he made *Liburnian* Ships of Cedar, which were richly embellish'd with studded Sterns, and Party-colour'd Sails, and were nobly adorn'd with *Porticos* and *Parlours*, with *Bagnios* and *Vines* and variety of Fruit-Trees; wherein the *Lelling* Emperour, amidst the Luxury of Musick, and other soft Entertainments, would touch on the Shore of pleasant *Campania*:

(o) [*Liburnian*]

They are so call'd, from a Region of that Name, lying between *Illyria* and *Dalmatia*. Some say they are made like three-oar'd Vessels, but with brazen Beaks, strong for PyracY, and of an incredible Swiftnefs.

They are term'd by some, *Turrite*, from the Turrets they were adorn'd with; which (as *Servius* tells us) *Agrippa* was the Inventor of, that they might suddenly in a Fight, and unawares to the Enemy, be erected on the Decks. For so that of *Virgil* is to be understood.

Tanta mole viri turritis Puppibus instans.

They had also *Liburnian* Chariots, made like their Ships, wherein the *Roman* Princes were wont to ride, according to that of *Juvenal* in his third Satyr.

----- *Turba cedente vehetor*

Dives, & ingenti curret super ora Liburno.

----- " The Crowd a rich Man thuns,
b. " Whilst o'er their Heads in huge Sedans he runs
c.



SECTION III.

Of Liberal Sciences in Use among Ancients, but now lost.

CHAP. I.

Of Musick.



HAVING in the Premises consider'd the *Mechanical Arts* come now to treat of *Liberal Sciences*, of which, now, there are not so much as the Footsteps remaining. On these is *Musick*, which was anciently a true and a practical Science. It appears from many Authors, that it did (p) affect Auditors with incredible Pleasure, in reality they heard *Words* together with the *Melody*. With which, if we compare our *Modern Musick*, this seems rude and barbarous, tickling only the *Ear* with Voice and Noise, without gratifying the *Intellect* with any Delight.

Our modern Musical Notes, had their Origin from that sacred Hymn to *St. John*, written by a certain Monk compos'd in his Cloyster, in this manner.

VT queant laxis

REsonare Fibris

MIra Gestorum

FAMuli tuorum,

SOLve polluti

LABii reatum.

Sancte Johannes.

Out of this Song, did that religious Person take the first Syllable of every Verse, *VT*, *RE*, *MI*, *FA*, *SOL*, *LA*, for the first Notes of a Tune; which having taken into his Hand, he began to sing it, and so make his Voice unison and agreeable to the Notes, which he had prick'd, and set down in certain Lines.

And upon this Practice and *Harmony* of Voices, was rais'd and built a certain kind of *Theory*, which yet is neither a *Science*, nor that ancient *Mathematical* One, consisting of seven Voices, according to *Virgil*.

Obloquitur numeris septem discrimine vocum.

Cardinal *Ferrara*. took a great deal of Pains in searching after it, but all to no purpose, so that that Art is utterly lost; for those that read the Books of this true Musick, are at a Loss how to practise it.

THE COMMENTARY.

(p) [*It did affect its Auditors with incredible Pleasure.*]

It would be an endless Task to sing forth the Praises, and to play o'er the various *Encomiums* of Musick: It may suffice to say, that it is, a noble Science, had in much Veneration among the Ancients; which we shall less wonder at,

when we seriously consider that it is a kind of *Food* and Nourishment to the Soul. And tho' some have censur'd it as a Softness that enervates and weakens the Mind, melting down its Powers into a poor Effeminacy ; yet we cannot but be taken with its *luscious* Accents, when we think and observe how much its *Divinity* hath been ador'd by Antiquity.

Some Philosophers have fancy'd all Nature *Harmony*, and the whole Frame of the Universe as one great *Instrument*, tun'd into orderly and methodical Proportions. *Aristotle* and *Plato* prescrib'd Musick, as a principal Ingredient of a liberal Education ; and that not only for its ravishing *Sweetness*, but upon the account of its planting such *Habits* in the Mind, which have a Tendency to Virtue.

Chiron, *Achilles's* Tutor, took care that his Pupil should be instructed in *Musick*, that he might mingle its *Charms* with the Noise of War.

It is not convenient to want that Quality, which tames not only *Men*, but even softens the Ferity of savage *Beasts*, which creates Relief, and the most cheering Refreshments to a troubled Mind, and is the most sovereign *Balm* for a pensive Soul.

'Tis a most obliging Diversion among the Ladies, whose tender Passions are variously moved with soft Gales of *harmonious* Air ; with whose vocal *Accents*, if you temper the *Breath* of a melodious Lute, you will transport with a Noise, that may be envy'd by the *Spheres*, and may equal almost the *Anthems* and Consort of the Celestial Choir.

C H A P. II.

Of Silent and Hydranlick Musick.

There was another sort of *Musick*, which they call'd *Mute*, or *Silent*, which was only express'd by the Gestures of the Hands, Feet and Head, which were very *intelligible*, and delighted and pleas'd most wonderfully the People, betwixt the Acts upon the Stage.

The Performers of this were call'd *Mimicks*, and *Pantomimes*, as may be easily gather'd from several Authors, (q) but chiefly from *Cassiodorus*, who in his Book to *Albinus*, saith, that the Ancients call'd that Part of Musick, *Mute*, which makes that to be understood by *Gesture*, which cannot better be signify'd by the *Tongue* or *Pen*.

This Art is quite vanish'd, of which there remains not the least Trace or Footsteps. And indeed 'tis no great matter, since it was only for *Pleasure*, a thing not much to be admir'd or minded by Christians.

(r) *Ctesibius Barbarus*, in the Time of *Ptolomy*, who usurp'd the Surname of *Euergetes*, found at *Alexandria* in *Egypt*, an *Hydroula* or Organ, which was vocal, and sounded by the Motion of Water. It was like a sound *Altar*, and had certain Pipes, that lay in the Water, which being mov'd by a Boy, were fill'd with Air by the help of some Strings, or little Tongues included within, and so breath'd forth Strains of most ravishing Harmony, as *Athenaus*, *Pliny*, and *Vitruvius* inform us.

Tertullian tells us in his Book *De Anima*, that (s) *Archimedes*, that famous Mathematician of *Syracuse*, was the first *Author* and *Inventor* of it. And he saith further, that it had many *Pipes*, through one of which it receiv'd Wind or *Breath*, as ours do.

This Instrument was call'd *Hydraulicum*, from the Greek Words ὕδωρ, i. e. Water, and αὐλῆς, to sound; and those that played upon them, were term'd *Hydraula*, who, among the *Gracians*, were those Musicians, who sung to Organs inspir'd by *Bellows*, but yet artificially mov'd by *Water*.

At *Tivoli*, not far from *Rome*, there is a Fountain *Sonorous* by the same Art; but I can scarce believe it to be so sweet and harmonious as the *Hydraulick Organ*.

The C O M M E N T A R Y.

(q) [*But chiefly Cassiodorus.*]

His Words are these; This Part of Musick the Ancients call *Mute*, or silent, in regard the Mouth being shut, it *speaks* with Hands, and by certain *Gesticulations* and *Motions* of the Body, makes those things intelligible, which can scarce be express'd either by Tongue or Pen. Those that are vers'd in this Art, are call'd *Pantomimi*, so nam'd, from various or multifarious Imitation; who do with certain Signs (as it were with Letters) teach and instruct the Sight of the Spectators, in whom you may read the Heads of Things as plainly as if written, they declaring as perfectly by the *Action* of the Body, what others do notify by the *Sound* of Words.

When

When *Demetrius*, the Cynick, saw in *Nero's* Time a *Mimick*, personating the Adultery of *Mars* and *Venus*, he cry'd out with Amazement and Admiration! *I hear, O Mortal! what thou dost, as well as see thee, who seem'st to speak with thy Feet and Hands.* And that which adds to, and increaseth the Wonder, is, that several Persons were represented and shewn in the very same Dance.

History tells us, that a King of *Pontus* ask'd *Nero* for a *Mimick*, to be an *Interpreter* to Foreigners, who signify'd and express'd things so lively by his Gestures, and mov'd himself with such Art and Dexterity, that he was easily understood by all that saw him.

(r) [*Ctesibius*.]

This Person is much commended and applauded by Historians, as the *Author* and *Inventor* of the Instrument *Hydraula*; of which there is an excellent Description in *Vitruvius* and *Athenaus*, from whom we may gather that it was very like an *Organ*, only in ours we see no Water.

(s) [*Archimedes of Syracuse*.]

Pliny, *Vitruvius* and *Athenaus*, ascribe the Invention to *Ctesibius*. You may see an elegant Description of it in *Claudian*, in the end of the Panegyrick of *Theodore*.

*Et qui magna levi detrudens murmura tactu,
Innumeras voces segetis moderatur abena.
Intonat erranti digito, penitusque trabali
Veste, laborantes in carmina concitat undas.*

The most portentous Piece of Magnificence done by *Archimedes* (saith *Tertullian*) is this *Hydraulick Organ*, which was enrich'd with so

many, and those various Parts, Members and Joints, which had such Passages for Voices, such Communications of Harmony, such melodious Pipes and Conveyances of Sounds, and all comprehended in one *Machine*. *Lucian* introduceth one big with Wonder, who, seeing five *Dancers* ready for the Sport, to be all personated by one Man, accosts the *Actor* after this manner. *Tho', Sir, you consist but of one Body, yet I perceive you are actuated by many Souls.*

C H A P. III. *Of Action.*

THere is also another excellent Art, the very *Basis* and Foundation of all *Gracefulness*; which is so utterly proscrib'd and banish'd out of the World, that no Man now a days understands it, neither will any be at the Pains to enquire or seek after it. And this (*e*) Art is *Action*, or the Motion and Management of the Hands and Looks; for in all our Elocution we elevate our Hands, and when *earnest* in speaking, we move and agitate our Heads and Fingers, but oftentimes absurdly.

The Ancients went to *School* on purpose to learn this Art, and we read (*u*) that *Cicero* made use of *Roscins* and others to instruct him in it, who, adapting their Gesture to their Discourse, did two or three times repeat them, till their *Expressions*, suitable to their *Actions*, left an Impression upon them. And therefore when *Æschines*, the Orator (after he was banish'd from *Aibens*.) repeated an Oration of his Adversary *Demosthenes*, and was applauded by all.

What

What would you say (quoth he) if you had heard *Demosthenes* himself? Intimating thereby, that barely to read a Speech, is only to see a dead Oration, which, when repeated with a graceful Action, and a becoming Gesture, is inspir'd with Vigour, Warmth and Life.

There is so much Power and Efficacy in this very Thing, that it is preferable to all Things besides; and therefore *Demosthenes* being ask'd what was the chiefest Part of an Orator, made Answer, *Pronunciation*; and being ask'd what was the next, reply'd *Pronunciation*; and what was the third, he told them again, *Pronunciation*; intimating thereby, that the greatest Excellency of an Orator is a graceful manner and way of speaking.

I have my self bestowed some Pains on the Study of this Art, and have found out some Actions most harmoniously agreeing with some kinds of Expressions; but it was impossible for me to observe them all, who have something else to do. Their Orators were very much intent upon this Thing, especially on the Stage, where they were critically observ'd and censur'd by their Auditors: And therefore *Quintilian* tells us, that when a certain Stage-Player, saying, O Heavens! look'd downward, and afterward cry'd, O Earth! and look'd upward, he was laugh'd at for a Fool, and was hiss'd off the Stage by the whole Theatre.

This Art is quite lost, which could not be deliver'd down to us in Books, nor *Pronunciation* neither. Italy, o'er-run with so much Barbarity for so many Years, could never obtain it, nor indeed as yet hath she got or acquir'd it, so that it is utterly gone beyond all Recovery.

Preachers ought chiefly to be concern'd in the reviving and cultivating this Art, who have Leisure enough, and do sufficiently move, tho' very often *incongruously*, in regard that Motion doth not consist in the *Elevation* of the Hands, according as we please, but in adapting the *Gesture* to the Words and Expressions, just as a Dancer accommodates his Motion to the Sound of the Musick, otherwise he is ridiculous. Thus much may suffice to have said of their *Action*. I shall proceed to say something of their *Rites*, *Manners* and *Customs*, and shall begin with their *Letters*.

THE COMMENTARY.

(t) [*This Art is Action.*]

This kind of Action is call'd by *Quintilian*, *Chironomia*, i.e. the Motion of the Hand, which was much approv'd on by *Socrates*, and was list-ed by *Plato* among the Civil Virtues; and is more *charming* and taking than any Voice whatsoever; for in all those Things which require Action, there is naturally a certain kind of Force and Energy, which strangely affects the meaner sort of People. Words scarce move a Man, but Action excites, and puts all the Powers of the Soul into a *Ferment*.

(u) [*Cicero made use of Roscius.*]

The Roman as well as the *Gracian* Orator (we mean *Demosthenes*) was very industrious and painful in acting, and therefore was Scholar to *Roscius* and *Æsop*, two famous Players, the one a Comedian, and the other a Tragedian; whom he was so familiar with, that he was a great Friend to, and a zealous Patron and Defender of them; for he check'd the People in a certain
Ora-

Oration, for disturbing *Roscins* when he was acting his Postures, and would oftentimes engage with the Player himself, whether the one could pronounce a Sentence in more different Tones and Gestures; or the other express it in a greater Variety of Phrase: By which Essays and Exercises, he at length arrived to such a Degree of Eloquence, that *Cæsar* the Dictator call'd him the *Father* of Eloquence.

Neither was *Demosthenes* less diligent in this kind of Study; who was wont to set and compose himself by a *Glass*, and copy'd the Gesture of the Image in the *Mirroure*. He entertain'd one *Satyrus* a Player as a Master to instruct him, by whom he was much improv'd, and repeated some Verses of *Sophocles* and *Euripides*, with such a winning Grace, that they seem'd to be made on purpose for him, though before he utterly despair'd of this *knack* at Oratory. He was afterward fully convinc'd that there was nothing of Elegance or Beauty in an Oration, unless it be recommended by an agreeable *Pronunciation*, only with this *Proviso*, that too much Curiosity be not observ'd in the Matter; lest instead of being Orators, they unhappily degenerate and sink into Stage-Players. So much may suffice for Action.

C H A P. IV.

Of the Characters of the Letters used by the Ancients.

ANtiquity us'd only great *Capital* Letters, as you may see in all their Marbles and Coins,

Coins, never inscrib'd with any of the *small* Ones, they being afterward invented for more speedy writing. (w) The same we may say of *Numbers*, which were also express'd by greater Notes; as for instance, an I signify'd One, an V. Five, an X. Ten, an L. Fifty, and a C. an Hundred. There were afterward invented these new Characters, 1, 5, 10, 50, 100; which, in the Language of *Arabia* (from whence they came) are call'd *Algorismi*, which Word is compounded of AL, the *Arabian* Particle, and *al-Bud*, which signifies Number.

The Ancients did not write on Leaves divided and folded into *Quartos*, &c. but they wrote only on one side of the Page, quite down to the bottom of the same, to which, for Firmness sake, and to make it the stronger, (x) they glew'd a Stick of Cedar, Ivory, or Ebony; the *Pumms* or Ends whereof were fortify'd with the Ornaments (for Beauty's sake) of Gold and Silver, and sometimes of Gems, and precious Stones; so that they wound up their Pages into several *Rolls*, from whence came the Word *Volume*, a *volvendo*, from rolling up.

Suetonius observes, that *Julius Caesar* sent Letters to the Senate, not written *thwart* the Paper, as the *Consuls* and *Roman* (y) Generals were wont to write; but he folded a Page like one of our Books, or (as he speaks) he model'd his Epistles into the Shape and Form of a *Memorandum-Book*. The poorer sort of People turn'd the other Side of the Paper in all their Writings.

Cicero tells us that he was variously affected with the Letters of his *Tyro*, being vex'd at the first Page, but pleas'd with the next: For they were wont to (z) *Vermilion* the Titles of their Works,

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Works, and to rub their Paper with the (a) Oil of Cedar, to preserve it from putrifying, and to keep it from Worms, and to give it a scent, and to make it smell sweet, as *Varronius* informs us, in the 9th Chap. of his 2d Book of Architecture. In which place he means not that Juice of Cedar, which the Latins call *Citrum* (from whence comes your *Citron* Apple) but an *Extract* from that Cedar, which grows in Mount *Libanus*, and resembles Juniper. Many Authors mention it, among whom, *Ovid* in his *Tristibus*,

Nec Titulus minio, nec Cedro charta notetur.

And when any one wrote learnedly, this was the *Encomium*; they gave of him ---- *Cedro digna locutus* ----- i. e. He had done something worthy of Eternity; for Things tinctur'd with the Oil or Sap of that Tree, were Proof against the Attacks of Moths and Corruption.

And here we may observe that the Ancients for the most part wrote but on one Side of the Paper, and seldom on both; for *Pliny* tells us, in the first Epistle of his third Book, that his Uncle had left an hundred and sixty Commentaries, which were (b) *Opistographi*, i. e. wrote on both Sides, and endors'd too; which it had been superfluous to have mention'd, if that way of writing had been observ'd by every one. And *Juvenal* speaks of a long-winded Tragedy endors'd o'er the Leaf. And *Martial* tells us, that his Book was writ on both Sides, which he therefore mentions, because 'twas a thing not us'd and practis'd. And indeed there was some Reason for that way of writing, for they that us'd it, roll'd up the Leaves like a *Volume*. We might

might add some more, but for brevity sake we shall wave and omit them.

Their *Superscriptions* on their Letters were also different from ours, for they mention'd as well the Name of the *Writer*, as they did of the *Receiver*: But our way is much the safer, which expresses only the Name of the Party to whom it is directed. I could mention also several other little *Matters*, but they are of no Moment, or of little Concernment.

But I cannot omit and pass by in Silence, that Custom among the Poets of *rehearsing* their Verses to their Friends, that were invited to hear them; there being scarce a Day in *April* (as *Pliny* tells us) without a *Repetition*. (6) *Virgil* repeated some of his Books with so good a *Grace*, that some of his Auditors wish'd they could steal his Mouth. When he came to that Verse,

----- *Si qua Fata aspera rumpas,*
Tu Marcellus eris -----

he spake so pathetically, that *Marcellus* his Mother fainted away, and dropt down into a Swoon; but she presented him afterwards with ten *Sesterces* for every Verse. In the last Age, *Boiardus* repeated his Poem at *Ferrara*, and because it was divided into Sonnets, which were rehears'd in a Tune, 'twas therefore intituled by the Name of Cantos.

Asinius Pollio is said to be the first that introduc'd this Custom, which is now quite laid aside.

They were also wont after Vintage to begin to study about Midnight, as may be gather'd from *Juvenal*.

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Post finem Autumni media de nocte supinum
Clamorus Juvenem Pater excitat; accipe ceras.
Surge Puer, vigila -----

----- " Now Autumn's past,
 " The bawling Father, to his Son snorting fast,
 " At Midnight cries, wake Boy, take Paper,
 draw
 " (And look you sleep not o'er't) a Case in Law.

The C O M M E N T A R Y.

The *Invention* of Letters is much controverted by Authors. It is commonly supposed they were found out by the *Phœnicians*, which *Lucan* intimates in his third Book, when he thus sings.

Phœnices primi (Fama si creditur) ausi
Mansuram rudibus vocem signare Figuris.

" *Phœnicians* that (if Fame we dare believe)
 " To human Speech first Characters did give.

(w) [We may affirm the same also of Numbers.]

Concerning *Numeral* Notes or Characters, you may read *Pudens de Assè*, where he shews this way of writing (for Brevity sake) by Notes, us'd among the Ancients, to be very uncertain. These Characters were far different from those, from whence it is clear that many Interpreters have fallen into Errors, by following the corrupt Copies of those *Librarians* that us'd them.

(x) [Did glew a Stick of Cedar, &c.]

In old Times, a whole Book was written in one continu'd Page, neither did they cut their Books into many Leaves, and bind them up as we do; but one entire Page, in which the Book was written, was wont to be roll'd up upon a
 Staff,

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Staff, or round Piece of Wood, Horn or Bone, fasten'd at the end thereof, in manner as large Maps are now a days with us. Hence it is a *volvendo*, that we call our Books *Volumina*, *Volu*mes.

This *Staff* being in the Middle of the Book, when roll'd up, was by Similitude called *Umbilicus*, or the Navel, and was always fasten'd at the end of the Page; hence, when apply'd to a Book, it signifies the End thereof. *Horace* tells us he brought his Poem *ad Umbilicum*, i. e. to the End; for the whole Page being unfolded, they came to this *Umbilicus*.

The two *Pummels* or Ends of this *Staff*, which jutted out, and appear'd at each end of the Volume, they call'd *Cornua*, which were wont to be tipp'd with Silver or Gold, or otherwise adorn'd. The Title, which was at the beginning of the Book, was term'd *Frons*. Hence *Ovid* to his Book ----

Candida nec nigrâ Cornua Fronte geras.

i. e. they were beautify'd and adorn'd with Gold and Silver.

(y) *As Consuls and Roman Generals us'd, &c.]*

When the *Roman* Emperors had atchiev'd gloriously, the Letters, that were *Heralds* of their Victories and Triumphs, were crown'd with Laurel, which *Marcellinus* calls *Laureata*. *Pliny* was not ignorant of this, when he said, that Laurel, the Messenger of Joy and Conquest, was fasten'd to their Letters and to the Pikes of their Soldiers.

(z) *[Were wont to Vermilion their Titles.]*

Hence came the Word [*Rubrick*] for an Inscription or Title, which the Ancients, together with

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with the Heads of their Laws, were wont to write with *Vermilion*, or some other red Colour for more easy *Distinction*, and for the Assistance of the *Memory*, or for a more speedy Discovery of their Observations and Remarks. Concerning this tincturing of their Laws with red, we read in *Juvenal*:

----- *Perlege Rubras*
Majorum leges -----

Read the old Law Rubrick. Perhaps Antiquity might do this, to add more Grandeur and Majesty to their Sanctions, which being (as it were) in a scarlet Dye, might seem to threaten and breathe out something that is tragical and bloody.

(a) *With the Oil of Cedar.*]

Cedro digna locutus. This is a Proverbial Speech apply'd to him, whose florid *Orations* for Elegancy of Style, and Solidity of Matter, do challenge an Immortality, and deserve to be celebrated, and to be embalmed with Praises to all Posterity. *Horace* alludes to it in his Art of Poetry.

----- *Animos arugo, & cura Peculi.*
Cum semel imbueris, speremus Carmina fingi
Posse linenda Cedro, & levi servanda Cupresso ?

----- “ When once the canker'd Rust,
“ And Care of getting thus our Mind hath stain'd,
“ Think we, or hope there can be Verses feign'd,
“ In Juice of Cedar worthy to be steep'd,
“ And in smooth Cypress-Boxes to be keep'd ?

Hence

Hence it was that the Books of *Numa* lasted so long, for this Oil of Cedar, wherewith they were smear'd, was Proof against the Attacks of Moths and Air. *Numa* took care before his Death, that those Books which were to be buried, should have a double Preservative, viz. the Juice of Cedar, and Candles made of the same Matter. This Juice (call'd *Cedrium*) was a Remedy against inward, and the Candles, a *Talisman*, against outward Putrefaction, which might proceed from the Air, in regard that kind of Moisture hath an excellent Faculty, not only of qualifying the Malignity of corrupting Causes, but of keeping and preserving things a long time; as appears from the Duration of *Egyptian* Bodies, which being embalmed with it, have lasted and continu'd almost three thousand Years.

(b) *Opistographa*, &c.]

That is, Paper endors'd, or writ on both Sides, from *omnes*, retro, backward, or behind, and *ypographia*, scriptura, writing; for they were wont to write but on one Side, by reason of the Thinness and Badness of the Paper, which would not bear Ink, and therefore those Books which were wrote on both Sides (it being an unusual thing to do so) were called *Opistographa*, i. e. Endors'd.

And because this way of writing was not very common, it gave Occasion to the Poets of lashing the *Opistographa*, or prolix kind of Compositions stuff'd with Verbosity, as *Juvenal* doth in his first Satyr, complaining that some Poems of the Ancients were tedious with *Opistography*, or endors'd Prolixity. And so doth *Martial* jeer a certain *Picentine*, who wire-drew his benum'd Verses to a troublesome Length.

Scribit

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*Scribit in averſa Picens Epigrammata charta,
Et dolet averſo quod facit ille Deo. i. e.*

“ Endors’d Epigrams the *Picentine*

“ Doth write, and grieves becauſe without
Divine

“ Inſtinct he makes them -----

From whence it appears, that the Books of the Ancients were only written on one Side, and were call’d *Volumes*, a *volvendo*, from rolling up; ſo that the outward and *Virgin Side*, cover’d the inward, which was deſlowr’d by the Pen. And that which was wrote on both Sides, was look’d upon as unuſual and mean, and was condemn’d to be a Covering. Wherefore, *Horace* preſaging the Fate of his Book, ſaith, that when it begins to be ſlighted, it will either be baniſh’d, or become an *Opifographum* to cover Letters.

(c) [*Virgil repeated ſome of his Verſes.*]

Servius Grammaticus tells us, that he repeated three of his *Aeneids* to *Augustus*, viz. II, IV, VI. which laſt he rehearſed upon the Account of *Octavia*, *Augustus* his Siſter, and the Mother of *Marcellus*, whom *Augustus* adopted, who dy’d about 18 Years of Age. *Octavia* being preſent at this Rehearſal, when *Virgil* came to thoſe Verſes about the End of the 6th Book, which deſcribed the Grief and Concern for *Marcellus*, ſhe fell into a Swoon, from which ſcarcely recover’d, ſhe enjoin’d the Poet Silence, and rewarded him with ten Sesterces for every Verſe.



SECTION IV.

Of several Rites and Habits, Customs and Manners used among the Ancients ; but now lost, and quite obsolete.

CHAP. I.

Of the Habits and Garments of the Ancients.



Infants (*d*) wore about their Necks certain Toys of Gold and Silver, call'd *Crepundia*, a *crepando*, from making a crackling and a tinckling kind of Noise, very diverting to the Babes. These were of several Sorts, according to every Man's Fancy.

Plautus (in *Rudente*) describing the Playthings of a certain Infant, saith, they were a little golden *Sword*, and a little *Axe* or *Hatchet* of the same Metal, on which were engraven the Names of the Child's Parents. He mentions also two little *Gauntlets* ty'd together, and a silver *Crane*.

The

The Boys were wont to wear, till about 13 Years old, a Mantle, call'd (e) *Alicula Chlamys*, and when past that Age, they put on the (f) *Prætexta*, which was a kind of Gown, border'd about with Purple Silk, and being button'd or clasp'd upon the right Shoulder, it cover'd and hid all the left Side.

They had also a golden or silver Ornament, hanging from the Neck to the Breast, called (g) *Bulla*, in the shape of an Heart, to remind them of the being of such a Thing within them, as *Macrobius* tells in the 6th Chapter of his first Book of his *Saturnalia*. The Author of this was *Tarquinius Priscus*, the fifth King of the *Romans*, who when he had triumph'd o'er the *Sabines*, because his Son, though but fourteen Years old, had wounded an Enemy, he commended him in a Speech, and rewarded him with the *Prætexta* and this golden *Bulla*, which was worn afterward by all the Youth.

When they were sixteen Years old, they laid aside the *Prætexta*, and assum'd and put on the (b) *Toga virilis*, so call'd, because given to Striplings growing towards *Man's Estate*; and 'twas styl'd *Toga*, a *legendo*, because (as 'twas said of the *Prætexta*) it cover'd the whole Body, and was button'd or clasp'd upon the right Shoulder, with a Button or Clasp of Gold or Silver, according to the Quality or Condition of the Owner.

They put on this Gown with very great Ceremony, there being invited to the Solemnity their Friends and Relations, and the whole Council of the City, and every one presented them with two *Denarii*, which were receiv'd and look'd upon as a Royal Largesse, as *Pliny* tells

tells us in an Epistle to *Trajan*. They were entertain'd also with a solemn Speech ; and this Day of Investiture was called *Tyrocinium*, i. e. the first Inauguration or Entrance into War ; *Tyro* denoting a fresh Water Soldier. And therefore *Augustus* desir'd the 12th and 13th Consulship to introduce his Sons (*Caius* and *Lucius*) on the initiating Day, into the publick *Forum*, to be admitted and list'd there.

On that Day the Knights presented them with a golden *Spear* and *Buckler*, which after their Decease were hung up in the Senate-house, as *Dion* relates in his 55th Book. And therefore you may see them on Coins of Brass, in Gowns, with Shields and Lances, with this Inscription, [*C. L. Principum Juventutis Tyrocinium*] You may see the same on another Coin of the Emperour *Domitian*, whereon is a Gown supported and upheld with a Brace of Spears, adorn'd and inscrib'd with this Title [*Princeps Juventutis*.]

Nero himself, when he first put on his *Manly Gown*, being brought a *Tyro* or Novice into the *Forum*, conferr'd on the People a noble Largeesse, and gave a large Donative to all the Soldiery ; and appointing the *Prætorian* Soldiers to run in their Armour, himself run among them ; with his Shield in his Hand, and afterwards return'd his adopted Father *Claudius* Thanks publicly in the Senate.

They commonly wore *blue* or *azure* Gowns, or of some other Colour, but never *black*, unless at Funerals, but chiefly *white*, especially when they came to the Shews, which Colour also the Senators wore ; whence it is call'd *Ordo Candidatus*. *A. Gellius* tells us that *Scipio* was clad in a
white

white Robe (which was Senatorian) when he was convened before a Tribunal, or Court of Judicature.

The C O M M E N T A R Y.

(d) [*Infants more about their Necks.*]

They were call'd *Crepitacula*, from making (as was said) a crackling kind of Noise, which was pleasing to Children, and much conduc'd to the quieting of them. *Martial* calls them *Garrula Sistra*, Prattling Timbrels. *Lib.* 14.

*Si quis plorato collo tibi vernula pendet,
Hæc quatit tenera garrula Sistra manu.*

(e) [*Aliculæ Chlamydes.*]

That is a short Gown, as one interprets it by *Martial's* Authority. For he calls that Vestment *Alicula*, which *Umber* sent him in the Winter Season in the 83d Epigram of his 12th Book.

----- *Bruma diebus fertisque Saturni,
Mittebat Umber Aliculam mihi pauper,
Nunc mittit Alicam, factus est enim Divus.*

The Poet taxeth *Umber* with sordid Covetousness; for when he was poor, he sent him (he saith) *Aliculam*, a Garment of a great Price, but now he is rich he sends him *Alica*, a cheaper Robe, and of a less Value. *Martial* calls that *Alicula*, which *Umber* sent him, a short Gown, in the 14th Epigram of his 10th Book.

Brevis gelida missa est Toga tempore Bruma.

(f) [*Prætexta.*]

This was a certain kind of Gown worn by Children, and therefore we find *Minority* oftentimes

times called *Prætextata Ætas*. 'Twas border'd about with Purple, but different from that which the *Plebeians* us'd; for this was of a more cloudy and dusky Colour, not dy'd with Scarlet, but *tinctur'd* only with the Juice of Herbs. It blush'd with Crimson, as an Emblem of Modesty, reminding Youth of that ingenuous Virtue.

(g) [*A Bulla hanging from the Neck.*]

Though our Author saith, that the Son of *Tarquinius Priscus* was the first that was presented with this childish Ornament, yet 'tis commonly reported that *Hersilia's* Son was adorn'd in his Infancy with the same by *Romulus*, who, when he came to comfort the ravish'd *Sabines*, promis'd to confer a noble Largeſſe upon her Infant that brought forth the first Roman Citizen.

(h) [*Toga Virilis.*]

After they had laid aside the *Prætexta*, and began to creep out of their Minority, they then assum'd the *Manly Gown*, because then they were past Striplings, being grown to Maturity. When they put on this Garment, they were brought into the *Forum* or *Capitol* by their Fathers or Relations, and were called *Tyroes*, and the Day of the Solemnity was styl'd *Tyrocinium*.

There was no certain Time of putting on this kind of Garment, if it was worn after Puberty it was held sufficient. *Octavius Augustus* put it on at sixteen, *Caius Caesar* at nineteen Years old; *Nero* was scarce *Puber* when he wore it, that so he might seem more ripe for Empire.

CHAP. II.

Of the Clasp or Fibula of the Ancients.

(i) **T**HE Clasp wherewith the Ancients fasten'd their Gowns, is also worth our Consideration, as is the *Girdle* likewise, which they sometimes us'd.

This *Button* or *Clasp* being fasten'd upon the Shoulder, let the Gown loose upon the Breast, not unlike to a *Sail* fill'd with the Wind; in the extremity of its Margent, on the lower Side of the Clasp, was a Needle of a larger Size, with a piece of golden or brazen *Wire* in the nature of a Thread, which was fasten'd in such a manner, that it might move to and fro, to humour the Gown in its Motion; and the rather, that the Point of the Needle was fasten'd in a little *Canal* or Notch which was made in the other, that is, the opposite Side of the Clasp.

It was made chiefly to fasten the Gown on the right Shoulder, and was not sew'd to the Cloth, but join'd two Parts of the Gown together, and that by *tying*, and not by *buckling* them; and therefore there was a Knot upon the *Fibula*, which they were wont to unloose when they had a mind to be fine, and to boast their Gallantry. Just so it ty'd the military short Coat, call'd *Chlamys*; for when they went to fight, they fasten'd it to their Breast by this *Fibula* or Clasp, as *Plutarch* informs us in the Life of *Coriolanus*, and *Virgil* saith the same, when he sings thus.

Aurea purpuream subnectit Fibula vestem.

He doth not say [*transfigit*.] it peirc'd or went through it, but [*subnectit*.] knits it together, because it ty'd it only with a Knot, as also they did sometimes their Belts or Girdles, especially when they fasten'd them to their Quivers furnish'd with Arrows, which *Virgil* intimates in his 5th Book, when he saith,

----- *Lato quam circumplectitur Auro,
Balteus & tereti subnectit Fibula Gemma.*

In which Words he insinuates that the Girdle that bound the Quiver to 'em, was cover'd with a gilt Case, and was fasten'd by this Clasp, made of a long or an orbicular Gem. And *Ovid* sings thus in the 8th Book of his *Metamorph.*

Rafilis huic summam mordebat Fibula vestem.

2. The Nobility and the Rich made it of Gold, as appears by the afore-mentioned Verses, the middle sort of Silver, and the inferiour of all, of Brass; the Soldiers wore silver ones: *Aurelian* was the first that granted golden ones, as *Vopiscus* informs us. Emperors had the Needle, yea sometimes the Clasp it self of Pearl, and such a one was that describ'd by *Virgil*, and was supposed to be *Augustus's*, in regard 'tis usual with the Poet to describe his Robes and his royal Habilliments: But this may be better inferr'd from the Law of the Emperour *Leo*, where the Soldiers had Liberty to use those Clasps or Buckles, which were only precious by Art or Gold, and not those that were enrich'd with Pearls.

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Pearls, because these were Ornaments proper and peculiar to *Emperors* alone ; and whosoever wore them besides, were fin'd 5500 Crowns of our Money. The Generals were wont to present their Soldiers that were stout and valiant, besides other Rewards, with these golden *Clasps*, as *Livy* reports in several Places. There was one of Gold found in an ancient Sepulchre upon a Gown, which immediately dropt and moulder'd into Dust, But the Metal remained whole and inviolable : According to the Pattern of that, was this fashion'd, which I present to your Highness, which I beseech you to accept, out of your wonted Clemency, not regarding so much the *Slendernefs* of the Gift, as the *Devotion* of my Mind wherewith it is offer'd.

3. They all wore under their Gowns, a *short kind of Coat*, like that of our Deacons and Sub-Deacons, and which was formerly us'd by the Greeks and Hebrews. (k) They all wore it, except the Senators, who had a Purple Coat, call'd *Latus-Clavus*, whose Sides were conjoin'd with golden *Globules*, call'd by the Latins *Lati-Clavi*, and therefore they did not tye their Coat with a Girdle. This kind of Garment was a *Badge* of the Senatorian Order.

4. They had under their Coats a woollen kind of Garment, *i. e.* a Wastecoat or Shirt, call'd (l) *Subucula*. They wore also Stomachers, but in cold Weather most commonly woollen Shirts, and were swath'd underneath with Bands, call'd *Subligacula*. Under their Gowns, especially in pinching Weather, they had a Garment call'd (n) *Lacerna*, which was an embroider'd Mantle worn by Knights, as *Isidore* tells us, and which *Martial* mentions in his 14th Book.

*Amphitheatrales nos commendamur ad usus,
Cum tegit algentes nostra Lacerna togas.*

In wet Weather, instead of a Mantle, they had a leathern Cloak made of Skins, as *Martial* tells us in the afore-cited Place. They wore no Stockings, as you may see in Statues, and therefore when dusty, they daily wash'd. *Plutarch* tells us that *Cicero* wore a long Gown, on purpose to hide his *Vein-swol'n* Feet; and *Pompey* swath'd a little Bunch upon his Leg, which made one merrily say in a Jest, [That he wore that Diadem on his Feet, which Princes were wont to carry on their Heads.] There is a Law extant in the Codes of *Theodosius*, forbidding to carry Breeches to Rome. When they were sick, they wore Linen Stockings, *cullender'd*, as it were, with Holes at bottom, and ty'd them with Garters (call'd *Crunules*) as is easily seen in many Marble Statues.

5. The Infantry or Foot, wore on their Legs a certain kind of Harness, call'd (p) *Caliga*, from whence they were call'd *Milites Caligati*. They had also another kind of Garment, call'd *Sagum*, and *Chlamys*, which they ty'd under their Chin; but when they went to fight, they threw it upon their Shoulders, and to be more fit for Action, they girt it to them, as you may see in *Plutarch*, and in ancient Monuments. Our Habit is agreeable to that of the Roman Infantry.

6. The Nobility and Roman Knights wore (q) Shooes of Leather, call'd *Perones*, which reach'd up to their Knees, and also another sort resembling those of our *Capuchins*, only with this Difference, *these* ty'd theirs with a Cord, and they

they with a Woollen Rope, or String, as may be seen in many Marble Statues. The Senators sew'd the Picture of the *Moon* made of Purple to their Shooes, which Shooes they call'd *Mallei*. *Plutarch* tells us the Reason of this was to remind them of the Vicissitude of fickle Fortune, which is sometimes *clear*, and sometimes *cloudy*, now in the *full*, and anon in the *wane*. Some give this Reason, because a *Crescent* or Half-Moon resembles a *Roman C*, which signifies an Hundred; intimating thereby, that the Number of the Senators were at first a full Hundred, and no more. *Dio* tells us that Senators went *bare-foot*, without any Shooes, except only when they met in publick; and if so, then much more may we conclude that others did so: Of which therefore we have the less reason to doubt, in regard it appears that our (r) *Blessed Saviour* went without Shooes the greatest part of his Life; and therefore when he enter'd the House of *Simon* the Leper, *Mary Magdalen* wash'd his Feet with her Tears, and wip'd them with the Hairs of her Head. *Simon* neglected this Ceremony of washing us'd towards Strangers, who, because *unshod*, did therefore more need this civil Usage.

The *Grecians* wore a *Mantle*, which was a kind of a *Cloak*, but without a Collar; and the *Hebrews* also wore one which was square at Top, as you may read in *Isaiah*, and in other Places of Holy Scripture. *Lactantius Firmianus* avers, that our Saviour's Garment divided by the Soldiers, was no other but a *Mantle*; but the seamless Coat (which is said to be seen at *Frankfort*) was entire to him to whom it fell by Lot.

(5) Here ariseth a great *Question*, whether the Ancients wore any *covering* upon their Heads or not, in regard we cannot find they did, either from their Coins or Statues: That they wore not a *Cap* like half an Egg-shell, is clear from their Medals; for this *Cap* was only given to Freemen, as a Token of their *Manumission*. Besides, *Suetonius* tells us, that *Julius Caesar* perceiving his *Baldness* to be liable to Flouts, was wont to pull his thin Locks from his Crown; and that when he could not this way hide his Infirmary, he was wont to wear a Crown of *Laurel*, which had been altogether needless, if covering of the Head had been then in use.

On the other side, the same Historian informs us, that *Augustus* not being able to endure the Winter Sun, was wont never to go abroad without a Hat. And *Plutarch* writes, that when *Draco* publish'd his severe Laws, which made *Herb-stealing* Capital, the People was so enraged and incensed against him, that they threw their Coats and their *Hats* at him, and ran away. We may add to this, that *Hats* were us'd against the Heat of the Sun. And the same Author affirms, that *Sylla* never rose up, or *uncover'd* his Head, but when *Pompey* approach'd him. And *Varro* adds further, that it was order'd according to an ancient Custom, that every one should be *uncover'd* at the Approach of a Magistrate, and that more for *Health*, than Respect or Ceremony.

I do not undertake to decide this Controversy, but leave the Point to be determin'd by others. But 'tis clear and evident, that the *Cap* call'd *Biretum*, was in Fashion in the Year 1170; it was black and conical like a Pyramid.

For

The Clasp or Fibula, &c.

For *Nicetas* tells us in the Life of *Alexius Comnenus*, that when *Andronicus Comnenus* was Emperor, his black and pyramidal Cap (w^h he had) being taken away, there was foisted on his Head in the room of it, a red, or a k of a Purple Mitre. And afterward, being pos'd from his Empire, he reassum'd his former Covering, which he call'd *Barbaricum*. A the same Author relates, that when *Baldwin a. Richard*, the Generals of the Latin Army, were taken and brought to *Isaac Angelus*, Emperor of *Constantinople*, they took off their Caps (*Bireta*) and made their *Honours* to the Emperor; yea Emperors themselves (as we have said) were wont to cover their Heads.

The *Romans* were all (i) shaven, and wore their Hair two Fingers long, and curl'd up into Rings, till the Time of *Adrian*, who was the first that wore his Beard so long, that it might be tuck'd under his Chin. Others imitated him afterwards, as *Dio* reports. And therefore all the Emperors were shaven till *Adrian*, but the rest wore Beards.

In Times of *mourning*, they suffer'd their Beards and their Hair to grow to a Length. *Livy* tells us, that when *Manlius Capitolinus* was thrown into Prison, a great part of the Commonalty chang'd their Cloaths, and wore long Beards, and longer Hair; and so did *Scipio Africanus* (as *Gellius* tells us) when impeach'd, either did he put off his white Gown.

The COMMENTARY.

(i) [*The Clasp wherewith the Ancients, &c.*]

Very great and frequent was the use of this asp, which was a Thing extremely necessary,
H 4 and.

and worn at length to a most exorbitant Luxury. For formerly the *Tribunes* only in the *Roman* Legions were allowed to wear golden Clasps, the common *Soldiers* having their Belts and other Accoutrements only adorn'd with *Silver*. Afterward, through Corruption of Manners, by Excess and Luxury, *Julius Caesar*, after a great Victory, affected such Gallantry and Spruceness in his Men, that he would have them adorn'd with Silver and Gold, and to shine and glitter in polish'd Armour; yea, he indulged them the Liberty of all lascivious Pomp, boasting their *Valour* even amidst the Softness of Perfumes and Ointments. *Aurelian* and *Leo* the Emperors, first favour'd the Soldiers with the golden Clasp.

Fibula sometimes signify'd a Pair of *Breeches*, worn by Youth to cover their Nakedness, when exercis'd in the Field in Feats of Activity; and they that wore them were called *Cincturi* by *Ovid*, and *Succincti* by *Pap. Statius*. Though indeed it was not so much us'd to hide their Shame, as to cool the Heats of rampant *Venery*, lest Comedians and Musicians, too much addicted to those kinds of Pleasures, should contract an Hoarseness from their smutty Enjoyments; and lest their *Sensuality* should spoil their *Musick*, and too much of the *Cyprian* should injure the *Syren*. Wherefore saith *Martial* in one of his Epigrams in the 14th Book; What Good doth this *Fibula* do? It makes them only *commit* at greater Expence, for Wantonness will purchase an Embrace at an higher Price from *Fidlers* and *Players*.

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(k). [They all wore it except the Senators, &c.]

The Senators wore a sort of Coat made commonly of white Cloth, but *pursed* over, and embroider'd with Studs of Purple, in manner of broad Nail Heads, from whence it was call'd *Lati-Clavia*, or *Latus-Clavus*; and the Persons wearing this Coat, were (as we said) Senators, and were call'd *Lati-Clavii*. There was another sort belonging to *Roman* Knights, and it differ'd in making from the first only in this, that the Purple Studs or-embroider'd Works of this, were not so broad as the former, whence the Coat was call'd *Angusti-Clavia*; or *Angustus-Clavus*, and the Persons wearing it were-call'd *Angusti-Clavii*.

(l) [Call'd Subucula, &c.]

So the inward Garment was call'd, and was commonly meaner than what was worn outwardly, which generally was spruce and neat; wherefore *Horace* opposeth (by way of *Antithesis*) the one to the other, styling the latter [*Pexam*] trim and fine, the former [*Trisam*] thread-bare and tatter'd.

----- *Si forte Subucula Pexa* -----

Trisa subest Tunica -----

----- "If thou dost wear

"Under thy nappy Tunick a thread-bare

"And ragged Garment -----

(m) *Stomachers, &c.*]

Call'd *Capitia*, quia *Pectus capitant*, i.e. cover and embrace the Breast. They were wont to swathe their Bosoms, which Swathings did not only serve to restrain and check within Bounds the soft *Swellings* of Virgin-Paps, as *Martial* speaks,

(*Fascia, crescentes Dominae compeſce papillas*)

but chaſten'd and corrected the ſuperfluous Bigneſs and *Luxuriancy* of extravagant Shoulders. Thoſe Girdings and Bindings rectify'd the Irregularities and Deformities of their Bodies.

(*n*) [*Call'd Lacerna, &c.*]

Some tranſlate it a *Cloak*, others will have it to be a little kind of *Hood*, worn as a Fence againſt Rain and the Weather. It was made ſo, that either Side might be worn outward, and at firſt it was only put on in War; ſo that *Lacernati* ſtood in oppoſition to *Togati*. Afterward we may conjecture it was made longer, after the manner of a *Cloak*, for it was divers times worn upon their Coats inſtead of Gowns.

(*o*) [*In rainy Weather a leathern Cloak made of Pelts, or Skins, &c.*]

Penula, quaſi pendula, we may english it an hanging Cloak; *Martial* calls it *Scortea*, for the Ancients ſtyl'd (*Pellts*, a Skin or Hide) *Scortum*, and from thoſe kind of *Pelts*, Harlots were term'd *Scorta*, *Pelles*; either becauſe (as ſome think) they uſ'd them for their Beds, or (as others) *ut Pelliculae ſubigantur*; ſo that *Scortum ſcortenum*, is taken in *Apuleius* for an old Whore, wrinkled and ſhrivel'd like a Pelt or Hide.

(*p*) [*Call'd Caligæ, &c.*]

Theſe kind of Things were ſtudded with Nails, and were the only Shooes peculiar to the common and inferiour Soldiers; and becauſe *Caius Caſar*, *Tiberius* his Succeſſor, was bred up, and convers'd daily with the *Gregarian* Soldiers. From theſe kind of Shooes (which to ingratiate himſelf with the Vulgar he commonly uſ'd) he had his Name *Caligula*. Hence we read of *Caligata*

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gata militia, and of *Caligati milites*, for private and common Soldiers. *Discincti*, ungirt, disolute, are look'd upon as slothful, cowardly, unfit for War; but *Præcincti*, well girt, and well appointed, are suppos'd to be strong and courageous; wherefore *Juvenal* puts *Caligatum* for a bold and valiant Warriour.

Adjutor gelidos veniam caligatus in agros.

i. e. *Velut andax miles*; like a stout and resolute Soldier.

(q) [*They wore Shooes.*]

There were two sorts of Shooes. 1. *Solea*, which was the Sole of the Shooe, call'd *Crepidula*, and in *Cicero's* Time, *Gallica*; 'twas ty'd on the bottom of the Foot with a leathern Strap, and so was worn instead of Shooes. 2. *Calcei*, of which there were divers Sorts, to distinguish the *Roman* People, which (omitting the variety of Colours) we may reduce to five Heads, all made half up the Leg, like Turkish Shooes, and were either lac'd close, as many of our Boots are now a days, or else clasp'd with *Taches* or Hasps: and they are these following, viz.

1. *Mullei*, from the Fish *Mullus*, being like it in Colour. They were also call'd *Calcei Lunati*, from their Claps, which were made in fashion like an Half-Moon, which Crescent resembling a *Roman C*, signify'd an Hundred, intimating thereby that the number of Senators (they being only permitted to wear that kind of Shooe) were at first a full Hundred, and no more. Some are of Opinion that they wore this *Moon-Clasp*, to remind them that the Honour they had at-

attain'd to, was as mutable and variable as that changeable Body.

2. *Uncinati*, such as were worn by the common Soldiers; they are supposed to be the same with the *Caliga*, from whence *Caligula* the Emperor had his Name.

3. *Perones*, which (as we may conjecture) were lac'd up the Leg, and were without *Half-Moon* Clasps, being call'd *Calcei puri* (*quoniam ex puro Corio facti*) i. e. made of pure Hide, which all other Romans wore with this Note of Distinction; that the Shooes of the *Magistrates* were beset with precious Stones, but the private Men's were not.

4. *Coturnus*, which was a Shooe worn by *Tragedians*, reaching up half the Leg, like Buskins.

5. *Soccus*, which was an high Shooe wore by *Comedians*, reaching up to the Ankle, which were such as Ploughmen wore to secure their Feet.

(r) [*Our Saviour went without Shooes.*]

He commanded the Disciples to do the like; which *Adamantius* interprets after this manner, viz. That their Feet, ready and swift to declare the Eternity of a blessed Life, should be free from all Token or Emblem of Mortality. *Moses* was shod at his Departure from *Egypt*, but at his Ascension to the Mount, to attend there on Divine Mysteries, he was commanded to loose the Latchet of his Shooes, because the Place he stood on was holy Ground, i. e. to cast away the Signs and Indications of *Mortality*, which (as *Pierius* tells us) is signify'd by Shooes.

(s) [*Whe-*

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(s) [*Whether the Ancients wore any thing upon their Heads or not.*]

That they wore a certain *Cap* call'd *Biretum*, we have some reason to deny, for they were either bare-headed, or else cover'd them with some kind of Garment; wherefore no Caps are to be seen either in their *Statues* or their *Medals*, neither doth *Homer* mention either *Hat* or *Cap*: So that the Fashion of bare Head seems to be derived from *Greece*, where the covering of the Head was not at all in use. But to return to the *Romans*; *Suetonius* reports that *Julius Caesar* was so much concern'd at his bald Pate, that he took nothing more kindly from the Senate, than the Privilege of wearing a Crown of *Laurel*, which there had been no need of, if Caps had been in use.

But here we must distinguish betwixt *Times* and *Men*; both which had the Prerogative of cover'd Heads.

1. By *Times*, we are to understand (according to *Lipsius*) sacred Rites or Sacrifices, Sports or Games, Peregrinations and Warfare, *Saturnalia*, and the like. 1. As for Rites and Sacrifices, they were always perform'd with cover'd Heads; whence the *Flamen Dialis* (the Chief Priest) seems to have his Name. *Flamines*, *quasi Filamines*, because his Head was cover'd, and encircled with a woollen Fillet. The *Pagan* Priests had a Cap upon their Heads, which when they could not endure for Heat, they bound them with a woollen *Filament*, and were call'd *Flamines*, *quasi Pileamines*, from their Caps, or *quasi Filamines*, from that Fillet or *Flammeum*, which is a remarkable kind of covering. 2. At *Sports* and *Games*, also their Heads were

were cover'd; especially in those that were in honour of *Saturn*, Caps were allow'd, as a Token and Sign of their Manumission and Liberty. 3. And so they were likewise in their *Pilgrimages* and Travels; and that with *Hats*, which were *margin'd* with Brims, as a commodious Shelter, and an excellent *Pent-house* against the Sun and Weather. *Plautus* describing a Soldier in his March, saith, he had a *Chlamys*, a *Machæra*, (a Sword) and *Petasma*, an Hat. And so *Augustus* is said never to take the Air without an Hat at Home; which Expression at Home) is somewhat emphatical, as if it was a new thing to go covered any where else but on the Road. 4. and lastly, In *Wars* also (as *Vegetius* tells us) the Soldiers wore leathern Caps, which they call'd *Pannonici*.

2. As for Men. 1. Servants made free, shav'd their Heads, and put on Caps, as a Token of their Liberty. 2. The Sick were also excus'd from the Ceremony of a bare Head, who therefore for their Health were allow'd to wear Caps. Thus *Ovid* instructing his *Lover* how to feign an Illness, among other Symptoms bids him wear a Cap. So that you see that all Persons whatever, except the afore-mentioned, went bare and uncover'd.

We do not much value the Authority of *Pliny* and *Plutarch*, of *Salust* and *Seneca*, and several others, who tell us that Men put off their *Hats* to Persons of Worth and Honour, in token of Respect they paid to them; for that covering must either be understood of those that are wont to be cover'd, as *Soldiers* with their Helmets, and *Priests* with their Veils, *Servants* with their Caps, and all Men with their Hats in Rain, or
an

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an *Umbrella* against the Heat of the Sun; or else the covering or uncovering of the Head, is not to be meant so much of a *Cap*, as of a *Piece* of their Gown, which they laid upon their Heads against Heat or the Wind, and threw it off upon occasion, as often as they met any Person of Honour.

(1) [*The Romans were shaven, and wore long Hair, &c.*]

Concerning the Beard and Hair, you may read the Gleanings or Collections of *Philip Camerarius*, out of the several Fields of various History. 'Twas a Custom among the *Romans*, both Princes and Citizens, to *shave* their Chins, which Fashion continu'd till the Time of *Adrian*, (who was the first that wore a long Beard) unless upon an occasion either of Grief or Guilt.

C H A P. III.

Of the Habit of Emperors.

(4) **T**HE *Roman* Emperors wore a certain kind of a Garment call'd *Paragauda*, or *Palmata*, which was a Purple Gown embroider'd with Gold and Margarites. There were usually both their own, and the Pictures of their Ancestry inserted into it, as *Ausonius* tells us in his Panegyrick to *Gratian*, where he mentions this *Palmata*, or Palm-embroider'd Gown, into which was wrought the Picture of *Constantius*.

This was also the Robe of those that triumph'd; for *Plutarch* writes, that *Paulus Emilius* perform'd that Solemnity in such a Vestment. In a Book of the *Dignity of the Roman Empire*, on the Ensigns of those Soldiers call'd
Happy

Happy *Valentinians*, is to be seen an Emperor in a Purple Garment, reaching down to the middle Leg, with Gloves on his Hands; and as far as can be discern'd, that Picture represented *Valentinian* the Emperor.

They wore gilt Swords in Ivory Scabbards, as it appears from several Verses in *Virgil*.

----- *Humero simul exiit enses*
Auratum, mira quem fecerat arte Lycaon
Gnossius, atque habilem vagina aptarat Eburna.

And in the beginning of the eleventh Book the same Poet sings thus.

----- *Ensem collo suspendit Eburnum.*

On the middle of the Scabbard they fix'd Stars of Jasper, as the same Author shews in his 4th Book.

----- *Illi stellatus laspide fulva*
Ensis erat-----

(xx) Empresses also wore the same Garment; for *Maro* describing *Livia* her Garment, calls it

----- *Pallam signis atoque rigentem.*

Women wore the *Toga* and *Pallium*, and over them a long Garment call'd *Palla*.

But to return to Emperors; they of *Constantinople* wore Purple Shoes, as *Nicetas* tells us in the Life of *Alexius Comnenus*, where he saith, that *Andronicus Comnenus*, when install'd into the Imperial Dignity, was plac'd on a gilded Throne (usual for Emperors) and had a Purple Cap on, which, when he was deposed, he laid aside together with his Purple Shoes.

The Grecian Emperors wore a Purple Mantle
 Rud.

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studded with Jewels, such as was the Helmet of *Valentinian* the Emperor, as *Ammianus Marcellinus* writes. *Zonaras* tells us in the Life of *Justinian*, that it was customary for those that approach'd the Emperor and the Empress, to pay their Homage by Prostration on the Ground; and that this was done by *Gelimer*, King of the Goths, when he was brought by *Belizarius* his General, who by a Conquest o'er that People, recover'd a great part of *Italy*.

(w) *Trabea* was a Gown made wholly of Purple, which was worn by Consuls. *Prætecta* was the Garment of Proconsuls and Prætors: But of this we spake before, and therefore shall wave an impertinent Repetition. But now, all these *Vestments*, together with the *Magistrates*, are quite out of Doors.

The COMMENTARY.

(u) [*Paragauda* or *Palmata*, &c.]

Paragauda is so call'd, either because 'tis the Grace or Ornament, and (as it were) the *Gaudium*, or Joy, or *Festivity* of a Garment; or because *quasi* *prope* *Caudam*, near the Skirt, Extremity, or Borders of a Robe. The Vestment styl'd *Palmata* was a triumphal Garment, interwoven with Palm and Threads of Gold. *Palm* was an Emblem of Victory, because Conquest (like that) shrinks and yields to no Pressures whatever, but stoutly bears up against all Hostility. That these *Paragauda* were silken Vestures wrought with Gold, and to be worn by none but by Princes and their Families, is clear and manifest. *Vopiscus* writes, that *Aurelian* the Emperor was the first that gave them to the Soldiers, whereas before they wore strait Purple ones;

ones; and these *Paragaudæ*, according to the Number of the golden Threads, were call'd *Monoiores*, *Dilores*, *Trilores*, &c. even to *Pentalores*.

(a) [*Trabea*, &c.]

This was of three sorts; the first woven all of Purple, which was consecrated to the Gods; the second was *Purple* woven upon white, and this was only for Kings and Consuls; the third was *Scarlet* woven upon *Purple*, and this peculiar to the *Augurs* only, and therefore 'twas call'd *Trabea Auguralis*, the second was call'd *Regia*, and the third *Consecrata*.

(x) [*Call'd Palla*.]

According to *Varro* it is so styl'd, *quia palam & foris extat*, and reaches quite down to the very Ground. *Virgil* intimates that it was very long, when he sings thus in the 11th of his *Æneidi*.

---- *Pro crinali auro, pro longa tegmine Palla;*
Tigridis exuvie per dorsum a vertice pendent.

Hence Men of Musick (which some call *Fiddlers*) are said (*trahere Palliam*) by the afore-cited Author, who have in their *Rear* a long Train sweeping the Ground after them. And though this kind of Garment was sometimes us'd by these *Men of Mirth*, yet *Nonius* tells us that it was proper to Women, and was worn by the most vertuous and modest of the Sex. Some derive it ἀπὸ τοῦ πάλαιον, i. e. from the Motion of its lower Parts, or because 'tis curl'd up in Plaits or Folds sparkling with Jewels. *Ulpian* also reckons it among Female Habilliments.

(xx) [*Empresses also wore the same Garment, &c.*]

For the Wife shines with her Husband's Lustre, and the *Honour* of the latter reflects an Esteem

Esteem and a *Dignity* upon the former. For since they are two in one *Flesh*, and Sharers in Right both divine and humane, the Law thought it incongruous for one to increase, and the other to wane; for the Man to be *vertical* in the highest Point of Eminency, and the Woman to *decline*, and not rival him in the same Pitch of Glory, especially since nothing can be more proper than for a marry'd Pair to partake alike of the *Contingencies* that may happen, be their State an adverse or a prosperous Fortune.

C H A P. IV.

Of the Manner of saluting Emperors.

(G) **T**HEY that saluted Emperors kiss'd not their *Knees*, as the Custom is now a days, no, nor their *Hands* neither; but they kneel'd and touch'd their Purple Garment, and therefore they were said to *adore* it. 'Tis usual with some, even at this Time, to kiss their Garments *whom* they honour and esteem.

The C O M M E N T A R Y.

(y) *Saluting* with the Ancients was the same with *adoring*, which is properly *ad ora movere*, to move towards the Mouth. And this was observed in the worshipping of the Gods; for many standing at a distance, and tearing to touch the *sacred* Deities with their *profane* Mouths, did reach forth their Hands, and then clap'd them to their Lips, and so kiss'd 'em.

And so they that saluted a Prince were said to *adore* his sacred Purple, because as soon as
ever

ever they had touch'd his Purple Robe, th
put their Hands to their Mouths, and kiss'd 'e
And hence (I suppose) is the Custom of sal
ting with a Kiss. But though this Ceremo
of *Osculation* was esteem'd such an Honour,
that none but Domesticks and Guardians
Princes in saluting their Vice-Roys, were si
fer'd to use it; yet in the Reign of *Tiberius*, th
Usage was so frequent, that it was forbid
by a Law.

Besides, from that ancient Rite of adora
'tis probable that the Custom of a *Paiser-m*
(of kissing the Hand) so usual in *Italy*, c
spring and proceed. Nay, this Mode of kissi
was not only confin'd to that Part or Memb
but through the *Pride* and Insolence of Dign
and *Grandeur*, it descended to the *Knees*; y
sloop'd so low as the very *Feet* too. Dio te
us, that *Pomponius Secundus*, when he was Co
sul, and sitting pretty near the Feet of *Caliga*
cring'd down so low as to kiss them; a
Seneca informs us, that *C. Caesar* stretch'd c
his right *Foot* to be kiss'd by *Pompey*.

C H A P. V.

Of a Diadem.

(2) A *Diadem* was a little Cap, like one h
of an Hand-Ball of the bigger Si
which being put upon the Head, was bou
about with a white Swathe. Both Kings a
Emperors wore them for Ornaments, our Crow
on our Coins do not a little resemble them; t
now *Diadems* are quite laid aside.

Emperors ty'd their *Belts* with a Jewel (which Belt it self was adorn'd with Gems) as we find that *Charinus* did, who wore Pearls even in his Shoes. *Maximin* the younger wore a Breast-plate of Gold and Silver, which was first us'd by the *Ptolomy's*. And (as *Capitolinus* informs us) he made golden and silver Swords and Helmets, studded and enrich'd with precious Stones, and so did *Gallienus* the same. *Herodian* tells us in his 5th Book, that *Macrinus* was the first Emperor that wore any of these Belts adorn'd with Gold or Pearl; and in his 8th he saith, that *Fire*, together with *Rods* of Laurel, were carry'd before Emperors by tall Men of a large Proportion.

The C O M M E N T A R Y.

(x) [*Diadem*.]

'Tis call'd by *Suidas*, *Regale Gestamentum*, the Invention of which *Pliny* ascribes to *Bacchus*.

The Word is deriv'd from *Διαδῆ*, *circumligo*, to bind about; for it was a white Cincture, encircling the Heads both of Kings and Queens.

(a) [*Fasces*.]

The Ensigns of Magistracy, were a Bundle or a Faggot of Birchen *Rods*, together with an *Ax* wrapt up in the midst of them. The *Rods* in Latin were call'd *Fasces*, and the *Ax* *Securis*. The Reason of carrying both these before Authority, was to signify the Difference of Punishments that belong'd to Offenders, the one notorious, and the other petty Malefactors. And the Reason why they were wrapt up together, was not only their *Portableness*, and Facility of being born, but the appealing the Anger of
the

the incens'd Magistrate, that it might be somewhat asswag'd in the Time of their unbinding.

C H A P. VI

Of Horses.

THE *Horses* of the Ancients were more splendidly *harness'd* than ours are now a days; for though they had no *Saddles* nor *Stirrups*, yet they cover'd them with *Tapestry*, *Purple* and *Gold*, interwoven and wrought with diverse Colours, according to that Distich in the inspired *Virgil*.

*Infrato ostro alipides, pictisque Tapetis,
Aurca pectoribus demissa monilia pendent.*

“ The Steeds caparison'd with Purple stand;
“ With golden Trappings, glorious to behold,
“ And champ betwixt their Teeth the foaming Gold.

Where he saith besides *Tapestry*, that they had *Monilia*, as *Roses*, little *Bells*, and several other Ornaments made of *Gold*. And that was the Equipage of *Augustus*, which he there describes, though he applies it to the Horses of King *Latinus*, which it is well if at that Time they were cloath'd with *Leather*.

They had also Trappings, which were little *Buckles*, or golden *Roses*, which adorn'd both the Forehead and other Parts of their Horses; and they were so handsome and becoming, that they are put by a Figure for elegant Orations,
which

which are frequently term'd *Phaleratae*. The Bits of their Bridles were for the most part of Gold, as *Virgil* intimates in his 7th Book.

---- *Fulvum mandant sub dentibus aurum.*

“ ---- Do champ on Bits of Gold.

He speaks of (b) Bridles, and of these *Equestrian* Ornaments in this following Verse in the 8th Book.

Franaque bina meus quæ nunc habet aurea Pallas.

“ Two golden Bridles which my *Pallas* hath.

I cannot omit the Mules of *Poppæa*, *Nero's* most beloved Wife, which were girt with Surcingles of pure Gold, nor her delicate Steeds (c), which were shod, saith *Xiphilin*, with the same Metal.

The C O M M E N T A R Y.

(b) [*Bridles, &c.*]

Because our Author makes mention of *Bridles*, the curious Reader may see them describ'd, and all their Parts in *Rhodoginus* his Antiquities. As for the Ornaments of their Bridles, their Luxury therein must be very notorious: For *A. Gellius* mentions a *Brigade* of Horse very splendid in its Equipage, as Bridles, Trappings, and other Accoutrements. And in buying of Horses, saith *Apuleius*, we do not regard their Furniture and Harness, the Gold and Silver, the Jewels and Pearls of their *wealthy* Crests.

The Steed of *Honorius* is describ'd by *Claudian* in the following Furniture.

Tur-

*Turbantur Phalera, spumosis morsibus aurum
Fumat; anhelantes exsudent sanguine Gemma.*

And again, thus he draws him in another Place.

----- *Crine superbus,
Erecto virides spumis perfunde smaragdos.
Luxurient tumida gemmata monilia collo,
Nobilis auratos jam purpura vestiat armos.*

Their Excess and Extravagancy was so great in this kind, that it was enacted by Law, that no private Person should usurp the Gallantry peculiar only to Princes and Emperors.

(c) [*Shod with Gold.*]

Suetonius tells us in the Life of Nero, that the Shoes of his Mules were all of Silver.

C H A P. VII.

Of the Testudo.

THE *Testudo* or Animal we are speaking of now, is not that kind of *Tortoise* which is commonly known, but a certain sort of *Snake*, white and small, and cas'd with a Shell of the same Colour; and shining (as it were) like a sparkling Margarite. 'Twas commonly found in *Lydia*, or *Arabia*.

(d) They were wont to cut them into certain Slivers, and to cover their Tables or Beds with them,

them, as with Olive-Wood and Ivory. This Creature is not to be seen now a days, only the *East-India Merchants* would make us believe that they sometimes meet with it.

The COMMENTARY.

(d) [*They were wont to cut them.*]

Carvilius Pollio was the first that *shic'd* them, and cover'd Beds and Cabinets with them, as *Pliny* tells us in the 11th Chapter of his 23d Book. *Seneca* describes the way of adorning with them, in the 7th and 9th Book *de Beneficiis*. [*I saw* (saith he) *Shells variously wrought with nice Curiosity, and purchas'd at great Rates, whose pleasing Diversity was colour'd into a Resemblance of true and real ones, &c.*] They were found of that Bigness near the Isle *Mauritica*, that ten Men might have feasted in one of them. I promise you a pretty sort of Dining-Room, and if ~~the~~ *Dishes* were as rare as the Place they eat them in, I'll assure you 'twas a strange and a wonderful Entertainment. There are several sorts of Shells that have treated Guests, but we never knew of any that could hold them before. Believe me, to be at once the Banquet and the House too, is an high Commendation of the Thing we are speaking of. *Beroaldus* tells us, that those *Testudos* the *Chelonophagi* fed on, were so vast and great, that they cover'd their Houses with some, and sail'd in others as we do in Boats.

C H A P. VIII.

Of Silver Furniture.

(c) **T**HE Ancients had *silver* Household-stuff as well as we, but far more *rich* and differing from ours in this respect, that they engrav'd their *Arms*, and the famous *Exploits* of their Ancestry upon them, as *Virgil* informs us in the first of his *Aeneids*, where he saith, that the Vessels of *Dido* were all of Silver, by which he meant the Furniture of *Augustus*.

*Ingens Argentum mensis, calataque in auro
Fortia facta Patrum, series longissima rerum
Per tot ducta viros, primaque ab origine gentis.*

The *Romans* had but little *Plate* before they arrived to such Grandeur and Majesty. *Val. Maximus* tells us in his 3d Book, that *Cornelius Ruffinus*, who was twice *Consul*, and once *Dictator*, and bore those Offices with much Magnificence, was therefore excluded the Senatorian Order, for having ten Pound weight of silver Plate (*Pliny* saith true) as affording an ill Example of Luxury.

Scipio Allobricus (call'd so from the conquer'd *Allobroges*, now the Savoyards) the Brother of *Africanus*, was the first that had Plate of a thousand Pound weight. At length *Rome* grew so luxurious, that there were (f) made 500 Chargers or Dishes; every one of which was of an hundred Pound weight, which Sum amounts to five hundred thousand Crowns. From hence it is easy to guess how many Chargers, Basons, Trenchers, and other Utensils there were of

less

SECT. IV. Of Silver Furniture. . 1

lesser value than of an hundred Pound. •Certainly there must needs be abundance, and those amounting to many hundred thousand Crowns. We can find now a days but a few Dishes of an hundred Pound weight.

They made their Chargers so large and capacious, that less Dishes might be contain'd in them. But these are nothing compar'd to others; for *Druslanus Rotundus*, the Servant of *Claudius*, had in his Time a *Quinquagenary* Charger, which was valu'd at 5000 Crowns; for the making of which he built a Shop on purpose, and the Fellows of them (which were eight hundred) were 58 Pound weight a piece. I cannot forbear telling you, that when *Carthage* was taken, there was not in that City above 4470 Pound weight of Silver.

They us'd formerly *silver Caps*, into which were insert'd little *Images* and *Jewels*, as it evidently appears from the fifth Book of *Virgil*.

Cymbiaque argento perfecta atque aspera signis.

“ A silver Cup made like a Boat,

“ Rough with Pictures, wherein doth float

“ Good racy Wine ----

Those Cups were made in the Form of a (g) Boat, which the Latins call *Cymba*. The Images about it he calls *Signa*.

Cratera impressum signis.

“ A silver Bowl with Images adorn'd ----

They were studded with *Gems*, as may be gather'd from the first Book of the same Author.

*Hic Regine gravem gemmis auroque poposcit,
Implevitque mero, pateram -----*

“ A Golden Bowl that shone with Gems
divine,

“ The Queen commanded to be fill'd with
Wine.

Yea, they had *Cups* all of Jewels. But these
kind of Utensils are not to be found now a
days, but in a few Houses ; and 'tis well they
are not, for 'tis an Argument of Temperance
and of great Modesty.

The C O M M E N T A R Y.

(c) [*Furniture of Silver, &c.*]

He may well say [*Silver*] for there was but
little mention of *Gold* among the Ancients, con-
sidering their Riches so much celebrated by
Authors, and less among us, considering the
Opulency of the World at this Day ; for every
one in reckoning up his Wealth and Substance,
computed his Worth and Value in *Silver*. In
our rather Addresses to the Goddess *Fortune*, the
first Word is usually *Gold ! Gold !* But in all
our Accounts, both publick and private, we
transact all things by Sums of *Silver*.

(f) *There were 500 Chargers, &c.*]

Budaus de Asse mentions some silver Dishes of
a vast Price, and concludes that Age to be a
great Admirer of *Sculpture*, wherein the engra-
ven Utensils of *Lucius Crassus* were valu'd at
150 Crowns, insomuch that he confess'd, that
for *Modesty* sake he durst not use them.

We do not say that *no golden Vessels* were in
use among the *Romans*, but only averr that they
were

were very rare. But among the *Arabs* and *Persians*, nothing was more frequent than that *Metal*; for we read that *Cyrus* had an House of Gold, and that other Kings of *Persia* had a Vine in their Chamber of the same Metal, and that groaning under Clusters of precious Jewels.

(g) [*Cups made in fashion of a Boat, &c.*]

Such was that which *Sol* gave to *Hercules*, the adulterous Issue of *Jupiter* and *Alcmena*; it was so large and capacious, that you might swim in it as well as drink, and 'twould serve for a Ship as well as for a Goblet.

Not unlike this were the *Trulla*, which *Alciat* saith were Vessels to drink Wine in, deep and oblong like a little Boat, and *Juvonal* tells us they were made of Gold.

----- *Laudare paratus,
Si Trulla inverso crepitum dedit aurea fundo.*

'Tis said that *Ptolomy* fill'd a thousand Guests with as many golden Cups, changing his Goblets as oft as his *Messes*. And 'tis reported that *Antonius* the Triumvir, us'd golden Utensils in his obscene Concerns.

[*Cups all of Jewels, &c.*]

Hence (saith *Seneca*) in the 9th Chap. of his 7th Book *de Beneficiis*; I saw Utensils of Crystal, whose Brittleness doth enhance their Price and Value. Hence the Phrase *Gemma bibere*, i.e. To drink in Cups made of Jewels, in *Virg. Geor.*

Ut Gemma bibat & Sarrano dormiat ostro.

"To drink in Jewels, and in Purple sleep.

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“ With his own Hand, but he would never
spare

“ To dowse it o’er with his dead Vinegar.

The C O M M E N T A R Y.

[*Horn of two Pound weight, &c.*]

He understands a little Casket made of Horn, containing that quantity, or (according to others) a Pint and half. For ’tis observable what *Galen* saith in the afore-mentioned Book, that Physicians formerly us’d Instruments made of Horns, and made them serve also for Cupping-Glasses.

C H A P. X.

Of the Manner of Eating us’d among the Ancients.

(b) ’TIS a great Dispute whether the Ancients did eat *twice a Day* or not; in regard we find frequent mention made of *Suppers*, but never of *Dinners*; however, we must conclude in the affirmative, that they had both these Meals. 1. Because *Cicero* in the 5th of his *Tusculan Questions*, tells us, that *Plato* wonder’d when he came first into *Italy*, that the Inhabitants of that Country eat *twice a Day*. 2. Because famous is that Saying of *Alexander the Great* [*That a moderate Dinner is a good Preparatory to an ensuing Supper.*] 3. Because ’twas a great Controversy among *Physicians*, whether is best, a little Dinner or a Supper? So that ’tis clear from hence, that they had their Repasts

twice a Day; yet after another *manner* of way than we have now.

For they *dress'd* nothing in the Morning, neither did they of the same Family eat in *common* at a set Meal, but every one did eat at any time as he pleas'd, whatever he found in the Pantry or Cupboard; into which they put (laying up in store for the whole Year) not only Cheese, Olives, Salts or Salt-meats, but several kinds of Pickles, and (as *Columella* tells us) many sorts of Herbs. In the Evening they provided a *Supper*, for the Word [*Cæna*] *i. e.* *νειν* in Greek, which is *communis* in Latin, denotes an eating or *commoning* together.

Pliny the younger, saith, that his Uncle was wont to eat sparingly, and that a slender kind of Diet (after the way of the Ancients) at Noon, but to sup more plentifully at Night. Their Supper-time was the ninth Hour, *i. e.* at three of the Clock in the Afternoon, at the time of the *Æquinox*, according to that of *Martial*.

Imperat extractos frangere Nona toros.

They supp'd in the Winter at the *first* Hour of the Night, as may be gather'd from a Letter of *Pliny* the younger to his Friend *Macer*. In the Morning every one eat as he had an Appetite, or as his Stomach served him. We never read of any Invitations to Dinner, but only to Supper.

(i) 'Tis pretty to apprehend their Posture of lying at the Table, which I think could not be understood, were it not from some Marble *Triclinia*, which are yet preserv'd. They were wont to eat at a round Table, one half whereof was taken up with three Beds, supported with three Feet, beau-

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beautify'd with Gold, Silver, Ivory, and other rich Ornaments; and these were cover'd with Tapestry or Purple Carpets. They sat upon these Couches with their Feet extended, according to the length of the Beds, but so as their Bodies or Breasts were rais'd up towards the Table which was pretty large. Every Bed did conveniently hold two, one *lying*, as Men did, and the other *sitting*, as Women, as may be gather'd from the first Chapter of the fifth Book of *Val. Maximus*. And because every Table had (k) three Beds, therefore the Eating Room was call'd *Triclinium*, from *τρι*, which is Greek for a Bed. *Martial* tells us that there could but nine sit at one Table, which (l) represented the Letter C, call'd in Greek *Sigma*. Every one did eat with his Trencher in his Lap, the Table being design'd for no other use, but to set Meat and Drink upon; those Tables were very dear: *Pliny* tells us that *Cicero* had one which cost him 1200 Crowns. *Tertullian* (*de Pallio*) speaks of one that cost 5000 Crowns, and of that Value was the Table of *Asinius Pollio*; these Tables were round, and were made of (m) *Citron-Trees*. Some have given as much for them as would have purchas'd an Estate.

We, in Imitation of our Saviour, after the manner of the Hebrews, do sit at our Meals: The most honourable Place at Table was next the *Wall*; for the Seat of King *Saul* is said to stand there, in the 20th Chapter of the first Book of *Samuel*. The Dishes on the Table had Supporters under them. *Javolenus* tells us, that if any *Corinthian* Dishes were given by Legacy, the Stands were in Law likewise suppos'd

to be given with them. And 'tis the Answer of *Ulpian*, that if any Dishes were at any Time bequeath'd, we must not only understand those that *held* our Meat, but those also upon which they *stood*.

They were wont to sup with their *Gates* open in the Hall, which was a large Room that received you at the first Entrance, before you came to the Porticos or Galleries, to wit, that the *Censors* (*n*) passing by, might observe, whether they exceeded in their Diet the Allowance of the Law.

Among other Things it was enacted, that no *Fowl* should be brought to the Table but a single *Hen*, and that not cramm'd neither (as *Pliny* reports) and also that no Man should expend at one Supper above an hundred (*o*) *Asses*, i. e. about six Shillings and three Pence of our Money. Afterward the *Licinian Law* allow'd three hundred, and of dry'd Flesh and Salt-Meats a certain Quantity; and the Reason was, that the publick *Necessities* and Wants might be supply'd. However, there were but very few that observ'd these Edicts; for *Clodius Æsopus*, a Tragedian, after vast Gains, made a sumptuous Feast, wherein abundance of Birds imitating (like Parrots) human Voices, and bought at very great Rates, were eaten and devour'd. He spent in these kind of Fowl (according to *Tertullian*) a thousand Crowns. *Pliny* thinks more, viz. fourteen thousand. The Son of this Man, Heir to his Father's *Luxury*, made once a great Supper; he gave to every Guest over and above, a *Margarite* dissolv'd in Vinegar to be drank.

Her-

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Hortensius the Orator was the first that kill'd a *Peacock* to be eaten, but *Marcus Aufidius Lucro* was the first that order'd it to be stuff'd and cramm'd; whole Revenue arising from thence, amounted to sixty thousand *Sesterces*, almost 500 l. But I am afraid the *Luxury* of our Age exceeds the *Extravagance* of former Times.

The most honourable Guest sat in the middle of the Table, as *Virgil* intimates, when he sings,

----- *Aulais tum se Regina superbis,
Aurea composuit sponda, mediamque locavit:*

----- " The Queen already late
" Amidst the *Trojan* Lords in shining State,
" High on a golden Bed ----

We may gather as much from *Salust*, whom *Servius* quotes; for he saith the Consul sat in the middle of the Table, and the rest sat in order on both Sides.

There was Water brought to wash their Hands, and Bread in a Basket, according to that of the Poet,

*Dant famuli lymphas manibus, cereremq; canistris
Expediunt, tonsisque ferunt mantilia villis.*

" Then Canisters with Bread are heap'd on
 high,
" Th' Attendants Water for their Hands
 supply;
" And having wash'd, with Velvet Towels
 dry.

and after that their Meat. It is to be observ'd that their Napkins were rough, and had a great Nap upon them like Velvet, the better to wipe and dry their Hands.

In

In the first place were set two new lay'd Eggs to be supp'd up, from whence came the Proverb *ab Ovo ad Mala*, from the Beginning to the End, because Apples were brought last. Every one had with his Eggs a *Lettuce*, which formerly was eaten at the end of Supper, but afterward they eat it at the beginning of it. Hence that Query of *Martial*,

Claudere quæ quondam Lætifica solebat Avorum,

Dic mihi cur nostras inchoat illa Dapes?

i.e. "Tell me why Lettuce we i'th' first place eat,"
"Which formerly was at Fag-end of I eat?"

Every one with his Lettuce had three *Snails*, as *Pliny* informs us in an Epistle to *Septimius*, in these Words, viz. [There was provided for every one, a single Lettuce, three Snails, and two Eggs, and a kind of Liqueur made of Grain, Wine, and Snow, call'd *Alica*] a sort of Beverage (like Ale) made of Corn, which they drank with Wine made (p) of Honey, and cool'd with Snow, into which they put their (q) Vessels of Wine and *Mulsum*.

(r) *Athenæus* writes that there were Taverns at *Rome*, wherein they kept Snow all the Year. They laid it under Ground in Straw or Chaff, and so it was sold to any body for the cooling of their Wine. This Practice was also in use among the *Grecians*, though *Macrobius* saith it is very noxious to the Stomach. They set their Wine upon the Table, as do the *Venetians* at this Day.

These things which we have hitherto mentioned, were Preparatories (as it were) and done before Supper. Afterwards were brought several sorts of *Flesh-meat*, according to every one's ability.

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ability. *Pliny* mentions Oysters, a Sow's Paps (a great Dainty.) *Macrobius*, in the thirteenth Chapter of the third Book of his *Saturnalia*, describing a remarkable Supper, saith, that at *Lentulus* his Instalment to be Priest of *Mars*, there were three Rooms spread with Ivory Beds. Before Supper they brought in Urchins, raw Oysters, as many as they could eat, and a kind of Shell-fish, call'd *Palours* (*Paloridas*) together with a Thrush and a well cram'd Hen; another Dish of Oysters, with Acorns, Dates, Chestnuts black and white, a kind of Fish called *Glycomeridas* (most delicate Meat, but now altogether unknown) together with little Figs, and Shell Fish call'd *Purples*.

In the Supper it self were *Sumina* (i. e. Sows Teat) sow'd Hog's-cheek, Brawn, a Bisk of all sorts of Fish, Ducks, stew'd Teal, roasted or broil'd Fowl, Hares, and that fine sort of Bread made at *Picenum*. The same Author adds, that *Cincius* complain'd they had brought a *Trojan Hog* to the Table, intimating thereby, that the *Romans* brought a Swine to the Board, big with as many Animals, as the *Trojan Horse* was with Men, and so would be as fatal to them, as they were to it. According to that of *Seneca*, Gluttony or the *Gullet* killed more than the *Sword*.

The Ancients did furnish two Tables, or had two Courses, as we have, one of Fleish, and the other of Fruit; when they had done with the former, they removed the first Board, and spread the second; for so some understand that Place of *Virgil*.

Postquam

Postquam prima quies epulis, mensaque remota.

“ Now when the Rage of Hunger was appeas’d.

On the second, or at the latter Course, they set on Apples, Grapes, Figs and Nuts, according to that of *Horace*, Sat. 2.

— — — *Tum pensilis uva secundas,*

Et Nux ornabat mensas cum duplici Ficu.

i. e. “ Dry’d Grapes and Nuts his second Course were made,

“ And double Figs were on the Table laid.

The Grape they us’d at second Meſs was the *Purple*, call’d by the Lombards, *Rossale*, a Fruit of a most delicious Taste; and also the *Duracina*, which was of a more solid Substance, but had little Moisture. They were wont to hang them upon Sticks, where being perch’d for a while, they brought ’em to the Table. They brought also at second Course a huge kind of Grape (like a Cow’s Teat) call’d *Bumasta*, witness *Virgil* in his *Georgicks*.

Non ego te Diis & Mensis accepta secundis

Transferim Rhodia, & tumidis Bumasta racemis.

----- “ The Rhodian Grape

“ In second Services is pour’d to Jove,

“ And best accepted by the Gods above.

“ Nor must *Bumastus* his old Honours lose,

“ In length and largeness like the Dugs of Cows.

’Twas call’d *Bumasta*, from *Bis*, a Cow, and *Mastis*, a Teat, because it was plump and turgid, like the Udder of that Animal

They eat also the *Rhodian* Grape, which is not known now a days, unless that be it which-

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we call *Zibeba* : With Grapes they had all other kind of Fruits, and over and above, a pretty sort of Viand call'd *Scriblita*, which we may english a *Tart*. Hence *Martial*.

—— *Mensis Scriblita secundis.*

Athenaus tells us, that at great Feasts they had Hares and Thrushes, Weasels and Olives. They had Olives both in the *Van* and *Rear* of their Suppers, according to the Epigram.

Inchoat atque eadem finit Oliva dapes.

Tertullian de Anima saith, they concluded their Meals with *Roast-meat* ; but I do not find this any where else. All these kinds of Viands which we have mentioned, were not brought confusedly to the Table, but every Dish had one *Lettuce*, two *Eggs*, and four *Olives*.

The most honourable Persons were most often drank to. *Homer* observes, that *Achilles* eating at *Agamemnon's* Table, had as much more Meat on his Trencher as any of the rest : The same was allow'd to the *First-born* among the *Hebrews*. And 'tis here to be observ'd, that they us'd *Spoons* in eating of Eggs and Snails. Hence *Martial*, speaking of that kind of Utensil, saith.

*Sum Cochleis habilis, sed nec minus utilis Ovis,
Numquid scis, potius cur Cochleare vocer ?*

i. e. " I am fit for Snails, and fit for Eggs and
Clary,

" What, would you know why I'm call'd
Cochleare ?

There

There was another Vanity that attended their Meals, and that was, that their Junkets or Sweetmeats, were pompously brought in with the Solemnity of a *Flute*; for *Macrobius* tells us, that it was observ'd, that when the Emperor *Severus* was at Supper, among other Delicacies, his (*s*) *Acipenser* (by some a Sturgeon) was brought to the Table by crowned Servitors, and those attended on by a Noise of *Musick*.

And now I have mentioned *Emperors*, I cannot but tell you how they were wont to pare their Apples with their own Hands. *Nicetas* relates in his 6th Book, that when 'twas told to *Manuel Comnenus* the Emperor, as he was about to eat, and was paring with his Knife a Peach, that the *Persians* had attack'd and set upon his *Purveyors*, he immediately threw away his Peach, and presently taking Arms, he mounted and went away.

Neither can I omit that noble kind of *Liquor*, so famous among the Ancients, of whose very *Name* these latter Ages are utterly ignorant. It was a *Liquor* that came first from the Intrails of the Fish *Garus* (a kind of Lobster) afterward of a *Mackarel* macerated and beaten together with Salt, from whence flow'd out this Juice or Moisture, wherein they were preserv'd sweet a whole Year, and then brought to the Table as a delicate Dish, and a most precious *Pickle*. *Pliny* reports, that no *Liquids* almost, unless *Ointments*, began to grow into greater Esteem, insomuch, that in his Time, two Gallons were barter'd for a thousand Sesterces, which is between seven and eight Pounds.

There was also another kind of *Liquor* (not much unlike this) which they call *Muria*, which
came

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came from the Fish call'd *Tunny*, pounded and macerated together with Salt; 'twas valu'd at a very high Rate, and was very useful (and so was the other) for the *sopping* of Bread, and making it go down the better.

Ulpian saith that there are some Liquors which are not to be eaten or drank, but in or with which we usually eat our Meat, as Oil and *Garum* (a Sawce or Condiment made of salted Fish) *Muris* and *Honey*. There are other Liquids which now supply the room of these, as *Caviare* and *Botargo*.

At their more solemn Entertainments, they were wont to introduce an (1) *Harper*, or a *Comedian*, towards the Conclusion of their Feasts, for the Diversion of the Guests, as may be gather'd from a Letter of *Pliny jun.* to *Septimius Clarus*.

The C O M M E N T A R Y.

(b) [*A Dispute whether they eat twice a Day, or not, &c.*]

There are many Authorities to prove that the Ancients had no Dinners. *Servius* tells us on the 4th of the *Aeneids*, that Dinners were not in use among them. *Cassiodorus* subscribes to his Opinion, and so doth *Pomponius Sabinus* in the Life of *Galen*. But *Bodinus* upon *Oppian* (*de Venatione*). and *Calius Rhodiginus* in his *Antiquities*, cap. 54. and *Philander* on the fifth Chapter of the sixth Book of *Vitruvius*, do much oppose it. We read in *Horace* of *Solidus Dies*, i. e. *Integer a Cibo*, whole, entire, and not interrupted by Meals, whereupon it seems that they fasted till Night.

(1) [*Pretty*.

(i) [*Pretty hard to apprehend their Posture at Table, &c.*]

Each Bed contain'd three Persons, sometimes four, seldom or never more, except at solemn Feasts. If *one* only lay upon the Bed, then he rested the *upper* Part of his Body upon his left Elbow, the *lower* lying at length upon the Bed. But if *many* lay upon the Bed, then the uppermost lay at the Bed's head, putting his Feet behind the second's Back, and the second rested his Head on the other's Bosom (there being a Cushion between) and laid his Feet behind the third's Back, and so lay the third and fourth, &c. after the same manner. You may see an exact Description of their *Accubation* in the sixth Chap: of the first Book of *Lipsius* his *Saturn. Serms.*

(k) [*Taken up with three Beds, &c.*]

We mean not those *cubiculous* Pallets, whereon we repose and sleep in the Night, but those *discumbitory* Couches, upon which they loll'd when at their Repast; for there were three, and sometimes two of these about the Table, on which the Guests did sit.

(l) [*Represented the Letter C. &c.*]

Sometimes this Table was made in the Fashion of an *Half-moon*, the one Part thereof being cut with an Arch or Semicircle, and then it was called *Sigma*, in regard it much resembled that Letter, which, as it appears by certain Marble Monuments, was formerly made like a *Roman C.* Hence that of *Martial*.

Accipe lunata scriptum testudine Sigma.

The Conjecture of some why they cut their Tables in that Form, is this: It is agreed on by most Authors, that in the semicircular Tables,
the

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The one Quarter was reserved void from Guests, that the Waiters might have convenient room to attend. Thereupon it seems not improbable that this strait Line was made for the Servitors.

(m) [*They were made of Citron-Trees, &c.*]

Pliny saith nothing could be more precious than these Citron-Trees. Martial prefers that Wood before Gold.

*Accipe falices, Atlantica munera sylvas,
Aurea qui dederit Dona, minora dabit.*

Cicero is said to have to have one that cost him twelve thousand and fifty Philippei, i. e. a golden Coin of Philip of Macedon; and *Afinius Pollio*, one that stood him in twenty thousand; and *Seneca* tells us of one that was purchas'd at thirty thousand Crowns.

(n) [*That the Censors might observe, &c.*]

It was the Duty of those Officers to restrain Luxury, wherefore *Cains Fabrius Lucinus*, and *Quintus Aemilius Papus*, convented *Pub. Cornelius Ruffinus* before the Senate, because he had ten Pounds of Gold and Silver in order to a Supper.

There are many Examples to shew that too great Luxury and excessive Delicacy was criminal among the Romans; A great Penalty was laid upon *Marcus Aemilius Porcina*, for building a Farm-house a little too high and lofty.

This virtuous and frugal-People desir'd to live thriftily and sparingly, not only in publick, but in private also, and affected not only to be good Citizens, but good Householders too. By private Luxury and Extravagance at home, they guels'd at the Administration of Matters abroad. A Man's Management of his own, will give a shew

shrewd hint how he orders and disposes of the Things of *others*. A too plentiful Condition is suspected to *detach* from the Fortune of *others*, and seems to carry along with it a shew of Tyranny; for in a City govern'd by *Democracy* or *Oligarchy*, *i.e.* by popular Voices, or by the Will of a few, 'tis easy to imagine that the Inhabitants will endeavour rather to out-shine each other in Riches and Grandeur, than in Piety and Virtue: Wherefore *Valerius Publicola* was censur'd for placing his House in the Palace.

Besides, 'tis beneficial to the Publick not to squander away Estates through Pride or Prodigality. Hence *Rutilius Rufus* was confin'd to a Rule, and stinted in his Buildings; and *Lycurgus* enacted, that the Roof of their Houses should be finish'd only with an Ax or Hatchet, and their Floors with a Saw. Hence sprang their *Appian Laws*, their *Sumptuarian* about Expences, *Vestiarian* about Cloaths, and several others about lessening Dowries, Funeral Charges, and the like.

(o) [*An hundred Asses, &c.*]

Our Author means the *Fannian Law*; for *C. Fannius* being Consul, put forth an Edict for the moderating Expences, allowing none to spend more than ten *Asses* at an ordinary Feast; but upon more solemn Occasions he allowed an hundred, and ordain'd that no other Fowl should be dress'd but a single Hen, and that nor fatted for the Purpose neither.

(o) [*Vessels of Wine and Mustum, &c.*]

Ulpian calls them *Promulsidaria*, from *Promulsus*, a pleasant kind of Drink temper'd with new Wine. This Liquor styl'd *Mulsum* (which may be

be styl'd *Metheglin*) was in great request among the *Romans*, which the Emperors in Triumph bestow'd on their Soldiers. *Martial* commends this *Mulsum* that is made of *Massick Wine* and *Attick Honey*.

Tam bene rara suo miscentur Cinna mardo,]
Massica Theseis quam bene vina favis.

And in another Distich, viz.

Attica Nectareum turbatis mella Falernum,
Misceri decet hoc a Ganymede merum.

He so extolleth this Liquor, that he thinks it only worthy to be mix'd by *Ganymede*, and to be only drank with *Ambrosia*.

Discorides tells us, that the best sort of this Drink is made of old Wine and new Honey. Hence that Proverb among the Epicures. *Mulsum quod probe temperes miscendum esse novo Hy-mettio & Falerno vetulo*] The Reason is, because they are of a different Nature, Wine being moist, and Honey dry. And therefore those Parts of the Body which are to be moistened, are to be refresh'd with the one, and those that are to be dry'd, are to be rubb'd with the other; so that length of Time taking somewhat from both, the Wine is purer, and the Honey dryer; so that the latter is robb'd of its Juice, as well as the former is freed from Water.

'Tis reported that some have arriv'd to a very great Age, by the mere Nourishment of this kind of Juice, without the Assistance of any other kind of Food; as *Pollio* the Roman, who lived about an hundred Years, and being ask'd by *Augustus*, how he was so vigorous both in Soul and Body, made answer, *intus mulso, foris*
oler,

oleo, i. e. He warm'd his *Corpasculum* with *Mulsum* within, and made it shine with Oil without.

(q) [*Wine made with Honey, &c.*]

We may term it *Vinum mellitum*, Wine sweet and luscious, and temper'd with Honey, such as was *Mulsum*, or *οινόμεν*, which we spake of before. Some make this Difference between them; the latter is comprehended under the Name of Wine, but not the former; though *Dioscorides* and *Pliny* use them promiscuously for one and the same Liquor.

(r) [*To cool their Wine with Snow, &c.*]

The Ancients had little silver Colendars, through which they were wont to strain their Snow, which they kept till Summer, to *chasten* their Wine. And thus they quaff'd Ice, and turn'd the *Penance* of the Mountains into the *Pleasures* of their Palates. The Vessel they prepar'd their diluted Wine in, was call'd *Colum Nivarium*. The poorer sort us'd Linen Sacking, according to that of *Martial*.

*Setinos moneo nostra nive frange trientes,
Pauperiore mero tingere lina potes.*

In which Distich the Poet doth not obscurely hint, that *Strainers*, through which they *percolated* Snow to cool their Wines, were us'd by the curious and better Sort, and were much dearer than Linen Sacking. Hence the same Poet sings elsewhere,

*Cæcuba saccentur, quæque annus coxit Opimi
Condantur parco fusa Falerna cado.*

(s) [*Acipenser, &c.*]

It seems to be inferrible from the 71st Chap.
of

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of the 9th Book of *Pliny*, that this kind of *Animal*, of great Esteem formerly, was of no Account in that Author's Time, which yet *Martial* his Contemporary renders dubious, in the 13th Epigr. of his Book.

*Ad Palatinas Acipensera mittite mensas,
Ambrosias ornent munera rara dapes.*

Where the Poet jerks the *Luxury* of his Age, and tacitly reproves it for translating so *precious* a Fish to *private* Boards, which was a Dish fit only for the more *splendid* Tables of Gods or Emperors.

Athenaus thinks this *Acipenser* to be that kind of Fish which we call *Lampréta*, a *Lamprey*, and the Ancients *Muræna*, which was much desir'd at their Tables, insomuch that *Caius Cæsar* had it at his triumphal Suppers. *Fenestella* was the first that gave them the first Place at their Tables. They were sent to *Rome* from the *Sicilian* Sea, because they were esteem'd the best, and therefore the *dearer*, as *Juvenal* intimates.

*Virroni Muræna datur, quæ maxima venit
Gurgite de Siculo -----*

And they are esteem'd more delicate, when they are taken pregnant and big with young, as may be collected from the 8th Satyr of the 2d Book of *Horace*.

*Affertur Squillas inter Muræna natantes;
In Patina porrecta : sub hoc, Herms, hæc gravida
inquit
Capta est, deterior post partum carne futura.*

“ Enter a Lamprey large, swimming as ’twere
“ Amidst a Shoal of Shrimps ; on which *Min*
Heer “ Cries

“ Cries, Note, this Fish was big with young when caught,

“ It had not otherwise been worth a Groat.

(t) [*Introduce an Harper or Comedian, &c.*]

’Twas an ancient Custom to *sweeten* their Entertainments with variety of Delights. At *Trimalchio’s* Feast in *Petronius*, there was nothing but Noise and harmonious Din ; there were all kind of Revels and ludicrous Sports, as Playing and Fidling, Piping and Jestling, Buffoons and Mimicks, and sly *Hocus* with his juggling Trinkets. Neither did their Luxury consist only in this, but their *Messes* came in dancing (as it were) at the Sound of Musick.

Ammianus tells us, that when exquisite Delicacies were brought in, the whole House rung again with melodious Accents. Nay, the Carvers dissected and cut up their hollow Birds, with certain Flourishes and *Gesticulations* of Hand, which were agreeable to the Notes and Sound of Instruments, as you may see in *Petronius*.

CHAP. XI.

Of Military Customs us’d by the Ancients.

THE Ancients in all their warlike Expeditions had but two Standards, one for the Cavalry, of a Sky colour in honour of *Neptune*, God of the Sea ; because in (u) giving the Name to *Athens*, he first introduc’d the Use of Horses, which was utterly unknown before to Men. The other for the Foot or *Infantry*, which was of a roly Colour, as *Servius* informs us in the be-

beginning of the 8th Book of the *Aeneids*, because that Flower sprang out of the Earth, and hath a fragrant Smell.

Their Standards were not of the same Fashion with ours, but were four-square, because they were in four Legions, consisting of seven thousand Foot, as *Plutarch* tells us in the Life of *Romulus*. And this Banner was of Silver, though *Dio* saith it was of Gold; and they were wont to cover it in a little Case of Wood, to defend it from the Weather; otherwise they carry'd it fastned to the Top of a Spear, made in Form of a Cross, which was the military Ensign of the Christian Legion. This was first invented by *Caius Marius*, and afterward was us'd for the Arms of the Empire.

(x) There were ten Bands of Soldiers (call'd *Cohortes*) in every Legion, and every Cohort or Band consisted of 555 Foot, except the first, which consisted of 1105, from whence 'twas call'd *Millenaria*, or (as others word it) *Militaria*. (z) The Eagle was carry'd in this Cohort, and the Bearer of it was styl'd *Aquilifer*, which we corruptly call *Alfiero*. The rest of the Bands or Cohorts had military Ensigns in Fashion of Torch-Bearers, who accompany'd the Cross with Tapers (for they set Candles upon it, as an Emblem of the Christian Militant Church) and the Enemy had (b) Dragons on Cloth of Silver, which, swell'd with the Wind, would seem to move. Some had the Head of a Lion or Bear, or some other Animal upon them, and the (b) Pictures of *Right-hands* join'd, as an Emblem of Concord and Unity in an Army. Our Countrymen have invented Standards of Colours and Ensigns.

These military Standards are now no where in use, but only some Footsteps of them are to be seen in Churches. The Emperor had a Banner call'd (*o*) *Labarum*, which was four-square, and woven on every Side, and fastned to a Spear, and so carry'd before his Person. As we guess now by the *Cornicines*, so they did formerly by the Sight of the Standard guess at the approach and nearness of the Emperor.

THE COMMENTARY.

(*) [*Neptune giving the Name to Athens, &c. introduc'd the use of Horses.*]

So *Servius* on the first Georgick of *Virgil*, who tells us that there was a shrewd Contest betwixt *Neptune* and *Minerva*, about imposing a Name on the City of *Athens*; wherefore *Jove* being in the middle of twelve Gods, *Neptune* struck the Rock with his Trident, and there sprang up immediately a Creature call'd an *Horse*. Afterward *Minerva* smote the Earth with her Spear and there presently started up an *Olive-Tree* with Berries, which because it seem'd to their *Godships* to be most beneficial, therefore *Minerva* is said in the Judgment of the Deities to have nam'd the City. But *Baptista Pius* reprehends *Servius*, and saith they are much mistaken, that think that an Horse started up in that Contest; for it was not at *Athens*, but in *Thessaly* or *Thrace* (the use of that Beast being unknown and wanting) that *Neptune* smote the Earth with his Trident, and there immediately leap'd up two Steeds, *Scyphus* and *Arion*; and to this we may refer that Distich of *Virgil*.

----- Tuque o cui prima frementem

*Edit equum magno tellus percussa Tridente,
Neptune! -----*

“ And thou, whose Trident struck the teeming
Earth,

“ And made a Passage for the Courser’s Birth:
And *Lucan* seems in his 6th Book to be of the
same Opinion.

*Primus ab aquorea percussis cuspidis saxis,
Thessalicus sonipes, bellis feralibus omen,
Exiliis ----- i. e.*

“ Here the first Horse for War sprung from a
Rock,

“ Which mighty *Neptune* with his Trident
struck.

(w) [*Horse and Foot, &c.*]

These were the two Parts of their Soldiery,
the *Cavalry* and the *Infantry*; the Officers over
them were generally call’d *Magistri Equitum*.
Romulus list’d three Centuries, and call’d some
Rhamnenses, from his own Name; others *Ta-
tenses*, from *Titus Tatius*; and the third *Luceres*,
a *Lucis communione*.

He appointed also three hundred arm’d Horse-
men, which he call’d *Celeres*, to guard his Per-
son both in Peace and War; and the Officer
over them is call’d the *Tribune*. The rest of the
Multitude attended on the King on Foot in War.

The Horsemen were divided into several
Troops call’d *Turma*; and every *Turma* contain-
ing thirty Horsemen, was sub-divided into
three Companies, call’d *Decuria*, every one of
which contain’d ten Horsemen; whence their
Captain was call’d *Decurio*, and the Captains
over greater Troops, viz. the several Wings of
Horsemen, were styl’d *Equitum præfetti*. The
principal Officer of the whole Army was usually

call'd *Imperator*, in English, *Lord General*, and his Deputy or Lieutenant, *Legatus*.

(x) [*The Foot were divided into Cohorts, &c.*]

The *Cohortes* into *Manipulos*, and the *Manipuli* into Centuries. The Word [*Cohort*] properly signifies that Plat of Ground before the Entrance of an House, from whence comes the Term [*Court.*] *Varro* gives this Reason of the Metaphor: As in a Farm-Country, many Buildings united together, make one Inclosure, so a *Cohort* consists of many *Manipuli*, join'd and list'd into one Body; every Cohort contain'd three Maniples, every Maniple two Centuries, and every Century an hundred Men, whence from *Centum* call'd *Centuria*. These Centuries were sometimes divided into lesser Companies, call'd *Contubernia*, every one consisting of ten Soldiers besides the Captain, who was call'd *Decanus*, and *Caput Contubernii*. The Officers over the Centuries were call'd *Centuriones*.

(y) *One for the Cavalry of a Sky-colour,*]

The Reason was, because it most resembles the Colour of the Sea, which they deem'd most grateful and acceptable to *Neptune*, the God of the Ocean, and the first Founder of the use of Horses.

(z) [*The Eagle was carry'd in this Cohort, &c.*]

Josephus tells us in his third Book, that the Eagle presid'd over the *Roman* Legion, as being the chief Monarch, having the universal Sovereignty over the winged Nation, and the stoutest Heroe among all the Birds. Hence it became the Sign of Empire, and an Omen of Victory wheresoever they went. Eagles were so much in use among the *Romans*, that the Poet sings as if they were peculiar to that People only.

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Ut nota fulsere Aquila Romanaque signa.

But whether the *Romans* were the first that us'd an *Eagle* for their Ensign, or whether they copy'd the Example of their neighbouring Countries, is not as yet so clear and certain.

To inspect more narrowly the Matter in hand, and to give you a short Account of the Thing; You may be pleas'd to know, that Men at first living together in a wild kind of manner, did eat and feed upon human Flesh, so that they continually jarr'd, and were ever at Variance, and he that was *strongest* still got the better: But the *weak* being at once instructed and provok'd by the Injuries of the *strong*, embody'd themselves at length into an Army, and made choice of some *Animal* to be their Ensign, and so defended themselves against all Attacks. And to this Creature (pitch'd on for their Safety) were great Honours paid. And thus the ancient *Egyptians*, not skill'd in War, when infest'd by their Enemies, invented an *Ensign* for their Soldiers to follow.

Some say that *Jews* had an *Eagle* for his Standard, and others ascribe it to *Cyrus the Persian*, who is said to have a *golden* one fastned to a long Spear. *Xenophon* tells us that he saw them in *Persia* in great Expeditions; they were sometimes of Gold, and sometimes of Silver; the Spear it was fix'd on was stuck into the Ground.

Besides the *Eagle*, the *Romans* us'd also Wolves and *Minotaurs*, Horses and Boars for their Military Ensigns; of which in order. 1. *Wolves*, and that because either Martial Youth was fed with their Milk, as we read in *Livy*, or because that Creature was dedicated to *Mars*; for that

is a rapacious devouring Animal, observing the Season of *worrying* Cattel, as Soldiers the Opportunity of *sacking* Cities, which is usually the Dawning, and Morning Twilight. 2. *Minotaurs*, whose Effigies they carried, as often as they advised and suggested Secrecy: For that *Hieroglyphick* intimated that the Counsels of Generals were to be *close* and private, as was the Den of that Creature an hidden Labyrinth. 3. An *Horse*, because that Beast presageth Battel, and is as full of *Fury* as ambitious of *Victory*: Besides, an Horse was in a peculiar manner sacred to *Mars*, being sacrificed to him Yearly on the Ides of *December*. 4. A *Boar*, because when the War was ended, the Peace was confirmed with a slain Boar; the Articles of which who-soever brake, was ston'd to Death and died like that Swine. C. *Marinus* utterly abolish'd all these four Ensigns, and retain'd only that of the Eagle. We find that *Romulus* being surpriz'd on a sudden, fasten'd a Bottle of *Hay* to the Top of a Spear instead of an Ensign; had it been a Bottle of good Wine, who would not be ready to venture a Stroke or two under so cheering a Banner? And our Author tells us, (a) [*That Right-hands join'd were Ensigns in their Armies, &c.*]

Antiquity made use of this Ceremony to confirm their Faith; 'tis known to a Proverb, that the Right hand was ever sacred to Fidelity. And it is very notorious in all History, that Treaties and Alliances, Bargains and Leagues, Covenants and Truces, were wont to be made and ratify'd by the solemn Custom of *joining* Right-hands. We often meet with in ancient Coins two *folded* Hands with this Inscription, *Fides Pub-*

Publica, Fides Exercituum, Fides Provinciarum.
And on the marble Statue of Faith at Rome, there are two Persons taking each other by the Right-hand, and Love is in the midst between them. And doubtless in Affairs of great Moment, as Wardships and Agreements, Bargains and Covenants, Leagues and Betrothings, &c. the Right-hands were joined as a Sign and Symbol of Consent and Agreement; hence that of Ovid in the 6th Book of his *Metam.*

*Ut signum Fidei, dexteræ utraque poposcit,
Inter seque datas junxit--.*

“ As Symbols of their Faith, their Hands
“ did join.

(b) [*Had Dragons on Cloth of Silver.*]

Hitherto concerning the Standards of the Foot: Now for the Flags or Banners of the Horse, which were call'd *Flammula*, and were four-square Pieces of Cloth of a middle Size, and expanded or spread on the Tops of Spears, as *Cedrenus* describes them. And such was the Ensign of the Dragon here mention'd. *Ammianus Marcellinus* calls it, Purple fastened to the End of a long Pole; and describing the Entrance of *Constantius* the Emperor into the City, he saith, there were *Dragons* tied to the gilded Extremities and Ends of Halberts. They are rarely well described by *Claudian* the Poet in his 3d Panegyrick of *Honorius* his Consulship.

(c) [*Call'd Labarum, &c.*]

This was the Ensign of latter Ages, and (as *Sozomen* tells us) was carried before the Emperor, and was much ador'd by the Soldiers; and at the Command of *Constantine* the Great, was enriched with Jewels, set in Form of a Cross,

as soon as ever he saw that Sign in the Heavens.

C H A P. XII.

Of Customs used by the Ancients in their Armies.

(d) **T**HEY had *Brazen Trumpets*, as *Vegetius* and *Virgil* inform us, --- *Æreæque assensu conspirant Cornua rauco*, and also (e) of *Horn*, call'd *Buccina*, which was narrow at one End, at which they blew, but broad at the other, like a Fish called *Buccinum*, a kind of *Purple*, from whence it had its Name.

In this Age we use (e) *Drums*, which were in use among the *French*, and were frequent in the *Sacrifices of Bacchus*. Towards the latter End of the *Roman Empire*, their *Cohorts* had an Excellent *Motto* inscribed on their Bucklers, of which I have largely discours'd in my Treatise on the *Roman Magistracy*. Their Captains Names were formerly written upon them; for (as *Zonaras* tells us) the *Life-Guard of Cleopatra* had her Name engraven on their Shields, and also upon their Spears, as *Plutarch* informs us in the Life of *M. Marius*.

They made them *Breast-Plates* of *Linen* macerated and boild in some eager kind of Wine, which was Proof against all Strokes and Blows whatsoever; as *Nicias* tells us in the Life of *Angelus Isaacus*, a *Gracian Emperor*. They were very convenient and useful, as being not so heavy and cumbersome as those of Iron: But these are now quite laid aside. They wore them
only

only to defend their Breasts; and therefore call'd them *Thoraca*, which in Greek signifies that Part of the Body; as *Seneca* interprets that Place of *Virgil* in the Eleventh of his *Æneids*.

----- *Thoracæ indutus, alientis*

Horrebat squamis. -----

----- " His Back and Breast,

" Well temper'd Steel and scaly Brass invest.

They made them of two or three *Anulets*, which they gilt and tied together with a Thread, but had always under them a Bulls Hide or two, according to that of the 9th of the *Æneids*.

----- *Quam nec duo taurea terga,*

Nec duplici squama lorica fidelis, & auxo

Sustinuit -----

" Not two Bulls Hides th' impetuous Force
with-hold.

" Nor Coat of double Mail, with Scales of
Gold.

Concerning (f) *Battering Rams*, and other war-like Engins, as the *Catapulta*, *Pluteus*, *Vinea*, and the thundering (g) *Balista*, I shall say nothing, in regard (being lookt upon as unnecessary Things) they are quite out of Use, and *Guns* are come upon the Stage in their Room. Neither are *Currus Falcati*, i. e. Chariots armed with Scythes made now a-days, because our brazen *Guns* which kill at a Distance, are supposed to be more commodious.

The C O M M E N T A R Y.

(d) [They us'd Brazen Trumpets.]

Their several Sorts of Trumpets, as *Cornu*, *Tuba*, *Buccina*, are most accurately described

with their several Differences by *Lipſius*, in his IV Book *de milit. Roman.* And thither we make bold to refer the Reader, for more ample Satisfaction touching that warlike Instrument.

(e) [*Drums, &c.*]

'Tis true enough what our Author ſaith concerning theſe, that they were not in uſe among the *Romans*, as *Lipſius* proves in the 10th Chapter of the forecited Book. You have them deſcribed in *Suidas*, who tells us, that inſtead of Trumpets, the *Indians* uſ'd Whips, wherewith beating both the Air and Drums, they made an horrible Noiſe, and a *Bombous* kind of Sound.

Their *Drums* were made after this Manner; They took the ſtump of a Fir-Tree, and made it hollow, and put *Latton* Bells into the Cavity of it; and then having cover'd the Mouth with a Piece of Leather, they toſs'd it up and down, and threw it about in the Army; ſo that the Bells ſounding within the Deal, made an obſcure grumbling, and bellowing kind of Noiſe.

(f) [*Battering Rams.*]

This Engine was a great *Beam* like the Maſt of a Ship, which had a Piece of Iron like a *Ram's* Head faſtened to the End of it, by which they battered down the Walls of Cities. It was hung upon a Beam, which lay a-croſs over a Couple of Pillars, and hanging balanc'd or even, it was by force of Men pulled backward, and then recoil'd upon the Wall. The Head of this Ram hath no *Horns*, but it is blunt, and made of the ſtrongeſt kind of Iron with a wonderful thick Neck.

(g) [*Baliſta.*]

'Twas ſo call'd ~~and~~ *from* *Βάλλειν* from caſting
forth

forth any Thing, and formerly *Catapulta* & *παιός*, which signifies a *Dart* or *Shaft*, and is described by *Marcellinus* after this Manner.

Between two *Planks* there is set in a Frame and fast joined a strong and big *Iron*, reaching out in Length after the Manner of a good Rule; out of the round Body whereof (which is artificially wrought) there lieth forth further out a Four-square *Beams* made hollow, with a direct Passage like a narrow *Trough*, ty'd fast with many Cords of Sinews, twisted one within the other, to which are joined two wooden *Screws*; near unto one of which stands the cunning *Balister*, who dextrously puts into the Cavity of the Beam, a wooden Shaft tag'd with an huge and a lumping Head. This being done, two lusty Men bend the Engine by certain Wheels; when the Top of the Head is drawn to the utmost Extremity and End of the Cords, the Shaft being shot from the *Balista* by its inward Force, swiftly flies out of Ken or Sight.

C. H. A. R. XIII.

Of Military Crowns bestowed on Soldiers.

THERE were several Sorts of *Crowns* given to lusty and valiant Soldiers. The most noble of all was called (*b*) *Civica*, which was conferred on him, who had sav'd and preserv'd the Life of a Citizen. It was made of Oak sacred to *Jove*, and which bore Acorns, which (they say) the Ancients were wont to feed on.

He was honoured with a (*i*) *Mural Crown* (which was of Gold) who first scal'd the Walls, and forcibly enter'd into the Enemy's City. He

was therefore adorned (as it were) with the Battlements of a Wall.

A *Corona* (i) *Palmaris* (of Gold also) was presented only to him, who first entered the Enemy's Trenches.

A *Corona* (k) *Rostrata* (of Gold too) was given only to him, who first boarded the Enemy's Ships. It was in Form like the *Beak* of a Vessel. Whosoever were honoured with any of these Crowns, had free Liberty to wear them for ever. When they came into the Theatre, all Men, even the Senators themselves, rise up to them: They sat next the Senators, and were free from all Offices of Trouble.

The *COMMENTARY.*

(h) [*Call'd Civica.*]

There were several Opinions about the Institution of this; some ascribe it to the *Arcadians*, whom the Oracles were wont to call in Honour of their Antiquity, *Glandiphagos*, i. e. Acorn-Eaters. Others give this Reason, because the Oak is as it were an excellent *Pantry*, yielding so Soldiers most easy Food, and that in a plentiful Manner.

A Third Sort tell us and say, that 'tis because the Oak is sacred to *Jove*; and 'tis very fit, that the Preserver of a Citizen should be crown'd with those Leaves, which were consecrated to the Protector of all Cities. This in Process of Time was bestowed also on the Lord-General, if he spar'd a *Roman*, when he had Power to kill him. This kind of Crown the *Athenians* did first Devise, and gave it to *Pericles*.

(i) *Mural*

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(i) [*Mural, Valleris.*]

The Former was put on the *Circlet* or Top, like unto the Battlements : The Latter was like a *Bulwark*, or at least the Mound that fortify'd the Rampire, call'd *Vallum* in *Latin*, from whence *Valleris*. 'Twas call'd also *Castrensis*, because the Lord-General bestowed it on him, who first entred the Enemy's Camp.

(k) [*Rostrata, &c.*]

Because painted with many Ship-Beaks, called in *Latin* *Rostra*. 'Tis called *Navalis* by *A. Gellius*.

C H A P. XIV.

Of the Armories (now called Arsenals) of the Ancients.

THERE was a publick Hall at *Rome* well furnish'd with all Sorts of Weapons, that upon a Case of *Necessity* or the appeasing a *Tumult*, the People might be in Arms immediately, in an Instant ; as *Cicero* tells in his Oration for *C. Rabinius* (l) And for that Purpose, there is at *Venice* a most spacious Armory, which they call an *Arsenal*.

The C O M M E N T A R Y.

(l) [*At Venice, &c.*]

(l.) This is preierr'd before all the *Arsenals* in the World, which is not only stored with all kind of Weapons for an Army on Land, but all kind of Tackle and Arms for a *Navy* at Sea. There is nothing more Magnificent, Commodious, or Formidable in the Christian World.
There

There are expended Yearly 600000 Crowns in Military Preparations both for Sea and Land.

'Tis above two Miles in Compass ; but you must Note, that within the Enclosure of this Arsenal, are contained all Sorts of Naval Stores and Tackle, Forges, Casting-Houses, Rope-Yards, Gallies, Havens, Locks, &c. so that a large Space of Ground must needs be taken up for those Uses.

This is the only Bulwark against *Turkish Armado's* and *Ottoman Fury*: And indeed, 'tis a greater Safe Guard than the united Forces, and the strictest Confederacy of all Christian Princes. 'Tis thought there are Arms for 50000 Men. Nay, they that shew it, would make us believe (say modern Travellers) that there are 2500 Pieces of Artillery, and good Arms for 100000 Foot, and compleat Equipage for 25000 Horse. These Words are soon pronounced, but not so easily prov'd.

C H A P. XV.

Of Triumphs.

(m) *BACCHUS* is said to be the first that Triumph'd ; but *Romulus* the first at Rome ; who sending his Enemies before, went after them a Foot, and the Army followed him.

Tullus Hostilius triumph'd on Horseback, and *M. Curius Canabulus* was drawn by four white Horses, whom afterwards they all did imitate.

The Day of Triumph was always Festival throughout the whole City ; all the Temples being open, and the Tables of the Nobility so splendidly spread, and so plentifully furnish'd,

is afforded the whole Soldiery sufficient Entertainment.

1. First, The Senate met the *Triumph*er at the Gate *Capena*, thro' which he pass'd and enter'd the *Capitol*.

2. Then follow'd the *Trumpeters* with their warlike Instruments.

3. And after them, were drawn the Chariots laden with the Spoils of the conquer'd Enemy ; together with Statues and Tabletures, Figures, and Images of Brass and Ivory, with Towers and Landskips of demolish'd Cities; and the Representations of the Battle and Engagement with the Enemy.

4. Then follow'd the *Go'd*, and *Silver* and *Brass*, which was taken from the Enemy, together with Statues and Tables, Dishes and Platters, Basons and Candlesticks, and other Utensils of Gold and Silver ; with Jewels and Purple, *rich Attire*, and noble Crowns of Gold and Silver presented to the Conqueror.

5. Then came all kind of Arms taken from the Enemy as Swords and Launces, Bucklers and Axes, Breast-plates and Helmets, and other like Tackle and Instruments of War.

6. Then follow'd the *Gifts* and *Presents* both of Gold and Silver conferr'd and bestow'd by some Thousands of Men.

7. After them came other *Trumpeters*, followed by fifty or a hundred Oxen crown'd with Garlands, and gilded Horns on Purpole for Victims.

8. And these were attended with a Train of *Boys*, carrying Golden and Silver Vessels to be us'd in the Sacrifice. The Servants were array'd with Cloth of Silk, and Purple and Gold.

9. And

9. And then were driven the Chariots of vanquish'd Kings, laden with their Arms and Diadems; together with their Wives and Children, Brethren and Relations, Acquaintances and Familiars; and then came a Number of other Enemies, taken Prisoners, with their Hands tied behind them, of which there were thousands, and those Honourable and Noble.

10. And then at length march'd the General himself, in a golden Chariot made in Fashion like a *Tower*, drawn with four Milk-white Steeds. He was clothed in (m) Purple embroidered with Gold, holding a Branch of *Laurel* in his Right-Hand, and an Ivory *Scepter* in his Left.

11. The Lictors or Serjeants went before him with the Axes and Rods; Trumpeters and Musicians play'd most sweetly on all Sides; being crown'd with Gold, and clad in Purple. One of them in a golden Robe reaching down to the Ankles, diverted the People with Jest and Drollery, and some smart Sarcasms levell'd at their Enemies.

12. There were costly *Fumigations*, and very rich Odours, burnt in the Presence of the General. And a publick Officer held up a Crown with Jewels, often repeating and inculcating this Motto or Document, [*Respice Futura, O Hominem te esse Cogita*, i. e. *Have regard to Futurity, and remember thou art a Man*]. And therefore the Triumpher had a *Whip* and a *Bell* hanging in his Chariot, to remind him, that he may possibly meet with, and happen on such Times, wherein it may be his Lot to be scourg'd with Whips, or to be *capitally* punish'd; for whosoever was to be *Beheaded*, had a little *Bell* hanging

hanging about him, lest any should touch the defiled and impure Wretch.

13. The Sons and the Daughters of the Triumpher did sometimes ride in their Father's Chariot, but the next of Kin always went near the Horses, which they sometimes mounted, as if themselves were about to Triumph. When *Augustus* triumph'd, *Marcellus* rode the far Horse, on the Right-Hand, and *Tiberius* the near one on the left, and the rest of the Blood walk'd near the Beasts; the Parents were only suffered to ride, the rest were wont to walk by on Foot.

14. The Servants and *Armour-Bearers* of the Triumpher follow'd his Chariot, and after their went in Order

15. The whole Army with the Officers and Captains, with (a) a Branch of Laurel in their Hands, and a *Crown* of the same on their Heads: And if any one had been rewarded with golden Diadems, with Bracelets or Targets, Spears and the like, he held them in his Hands, singing *In Pæans*, Songs of Praise, in Honour of the Triumpher, mingling them with the Festivity of something that was *ridiculous*.

16. After they had arrived to the *Forum* in this Pomp and Splendour, the Triumpher imprisoned one of the chiefest of his *Captives* appointed to die. From thence the whole Senate and Magistracy accompanying him, he ascended the *Capitol*, and when he was informed of the Death of the Captive, they sacrificed Bulls, and devoted to *Jupiter* some certain Spoils.

17. And after all this they supp'd in the *Por-tico's* of the *Capitol*, where they staid till the Evening.

18. And

18. And last of all, with several sorts of *Musick*, they waited upon the *Triumph*, and conducted him Home, and so put a Period to the *Festival Solemnity*.

A Triumph sometimes lasted three or four Days, especially in Case there were great Spoils; as did those of *T. Flaminius*, *L. Paulus*, *Cn. Pompeius*, and *Augustus Caesar*.

(r) No Man was suffer'd to *Triumph*, unless he had routed or kill'd 5000 of the Enemy, and had enlarged the Territories of the *Roman Empire*.

This pompous Ceremony may be gather'd out of the 3d and 5th Books of *Dion. Halicarnas.* and from the 8th Chapter of the 2d Book of *Val. Maximus*; out of the 24th Chapter of the 2d Book of *Josephus. de Bello Judaico*, and out of *P. Emilius* his Life in *Plutarch*, and *Ap. pian. Alexand.* of the *Lybian War*, and others.

They triumph'd also, who conquered at *Sea*, sending before them Beaks and Anchors, and other Naval Tackle of the Captive Ships. All the Silver and Gold, and the Spoils they took, belong'd to the People of *Rome*; and after Deduction for *Triumphal* Expences, were laid up in the Treasury.

They, who had discomfited the Enemy without *effusion* of Blood, and had vanquish'd Men of lower Degree, as Slaves, and the like, had an (p) *Ovation* only; i. e. They enter'd *Rome* on Horseback, attended with a Retinue of Knights, and their Friends, and an Army also; being clad in Purple Gowns embroidered with Gold, and offering *Sheep* in Sacrifice in the *Capitol*; and this was call'd the *lesser Triumph*.

Then

There were reckon'd 350 Triumphs and Ovationes from *Romulus* to *Belisarius*, who was the last that was honoured with that noble Solemnity in the City of *Constantinople*, under the Emperor *Justinian*: Otherwise Leave to *Triumph* was indulg'd and granted but to a few (f) under the Emperors, though the *Triumphal* Ornaments were reserv'd for them, as the *Laurel*, and the *Trabea*, the *Ivory Scepter*, and the like, which they always us'd in publick Places.

The C O M M E N T A R Y.

(m) [*Bacchus the first that triumph'd*]

He returned laden with ample Spoils from the conquered *Indians*, whence he is call'd *Θρίαμβος*, from which Word, divers Authors with little Alteration, derive this Word *Triumph*. Some fetch *Triumphus*, *Θρίαμβος*, a *Thriis*, i.e. *Foliis Ficulneis*, Fig-Leaves, because covering their Faces with those kind of Things, they were wont to dart in *Iambicks* their bitter Satires.

Θρίαμβος and *ἡ ὄρεσις*, i. e. *acclamare*, to shout, because the Soldiers were wont to sing (*Io Triumphe!*) as he went to the Capitol through the City, *λαλοῦντες*, *male dicere*, to reproach and speak ill of, because the Soldiery and the Mob were wont to jeer, and droll upon the *Triumph*; lest he should be too much puff'd up by his prosperous Fortune; wherefore a certain *Servant* went always before him, still reminding him of this Lesson: *Redire in se & supra hominem nihil sapere*, i. e. "To reflect upon himself, and to affect nothing above humane Nature.

Hence

Hence that Sarcasm against Triumphant *Cesar*,
Gallias Cesar subegit, Nicomedes Casarem; i. e. *Ce-*
sar had conquer'd *France*, but *Nicomedes Cesar*;
 and hence was occasioned another Flout [*Urbani,*
servate Uxores, macchum calvum adducimus, i. e.

"Have a care of your Wives, for here we
 "bring a Bald-pate Whore-Master.

And thus when *Ventidius Bassus*, a Man of
 mean Rank was advanced in Dignity, and an
 eminent Station; and when after his Victories,
 and his treble Conquest over the vanquish't *Par-*
thians, he gloriously rode in his triumphant
 Chariot, he had this *Jambick* levell'd at him.

Concurrere omnes Augures, Aruspices,
Portentum inusitatum conflatum est recens.
Nam, qui Fricabat mulos Consul factus est.

i. e.

"Come all ye Augurs, Sooth-sayers, and see,
 "A new Portent, the strangest Prodigy.
 "He that before was wont to curry Mule,
 "Hath commenced Consul, and rides in Chair.
 "Curule.

There are infinite Examples of this Nature,
 whereby it is manifest, that the more eminent
 Men are, and the higher they are advanc'd, the
 more they are obnoxious to the Darts of *Envy*,
 which ever (like Fire) hath a tendency upward.
 And that I presume might be the Reason of the
 Triumphers wearing upon his Breast a *Bulla* like
 a Heart, as an *Amulet*, and Preservative against
 the Powers of Malice, supposing it pregnant,
 and big with Remedies against the venomous
 Teeth and Bites of that Evil.

(n) [*Was clad with a Purple Robe.*]

It was not meer *Purple*, but was interwoven
 With

with *Palm*, the Emblem of Victory, as we intimated before in the Habit of Emperors.

(o) [*Laurel in his Right-Hand.*]

Some think he was crown'd with a Garland of Laurel, of which there might be these several Reasons. 1. Because that vegetable was a *Token* of Peace among armed Enemies, and was an *Emblem* to the Romans of Joy and Victory; or 2. Because it boasts a perpetual *Verdure*; or 3. Because it was deposited in the Lap of *Jupiter*, as often as fresh Victories created Matter of Joy, or (which seems to be the chief or principal Reason.) 4. Because 'twas most plentiful in the Hill of *Parnassus*, and therefore most grateful and acceptable to *Apollo*. Because the Temples of the Triumpher were *encircled* with Laurel, therefore they call'd that Garland *Corona Triumphalis*.

(p) [*Had an Ovation.*]

So call'd *ab Ovis mactatione*, i. e. from the Sacrificing of Sheep. In this, the Coronet they wore was call'd *Ovis ab Ovatione*, and was bestow'd on those that enter'd the City in a triumphant Manner, when the War was not either *rightly* proclaim'd, or was wag'd without *Blood*; nor upon an unjust Account, or with a mean Adversary, as Slaves or Pyrates. This Garland was of *Myrtle*, which was consecrated to *Venus*.

(q) [*Supp'd under the wing's of the C. &c.*]

'Twas customary for the Triumpher to invite even the *Consuls* the next day to feast, and afterward to forbid the most powerful Person should be present the following Day. Provision for the City of

with all imaginable *Applause* and *Festivity*, even beyond all former Instances of *Honouring*, and Methods of Rejoicing, and that upon this Account of putting an End to all Civil Wars, of increasing the Republick, and of enlarging the Bounds of the *Roman* Empire.

And 'tis strange and wonderful, that there was not only *Vermilion* mixt with the Ointments of the Triumphal Supper ; but the Body of the *Triumphator* was so smeared with it, that it seem'd to flaunt it in the Azure of the Sky. So *Camillus* triumph'd, as *Pliny* writes in the 7th Chap. of the 33 Book.

(r) [*No Man was suffered to triumph, &c.*]

This being the highest and the utmost Pinnacle of military Honour, was not to be conferred promiscuously on all, but only on those that had vanquish'd 5000 of the Enemy at the least; and if any Man *falsified* about the Number of the Slain, he was punish'd by the Law : And therefore when the Triumpher enter'd the City, all were sworn by the *Censors* to tell the Truth.

Whosoever triumph'd, ought to have atchiev'd what he did, either as *Dictator*, or *Prætor*, or *Consul*, and not only to have restor'd, but also to have enlarged the Empire, and to leave that Country peaceable to his Successor, over which he had triumph'd.

(f) [*Liberty of Triumpling granted but to a few under the Emperors, &c.*]

For all War is wag'd by the Authority of the Prince, and therefore no *Triumphs* can be granted to their Generals, because they fought under the Command of another. However, they gave them Leave to wear in Publick the triumphal *Ornaments*; as the Crown of Laurel, the Garment

ment of Estate, call'd *Trabæa*, the Palm embroider'd Coat, and Ivory Scepter.

(*t*) [*Belisarius triumph'd under Justinian,*]

Who gave him leave to triumph over the *Parthians*, though he conquered through the auspicious Arms of others.

C H A P. XVI.

Of Ambassadors.

THE Ancients allow'd (*t*) Ambassadors out of the publick Treasury, their (*u*) *Viaticum*, or Provision, and Expences for their Journey, (*w*) and honoured them besides with a *Gold Ring*, which they wore in Publick; but afterwards, when they left it off, they wore an *Iron* one within Doors, as *Pliny* informs us in the 1st Chapter, of his 3d Book.

But this was observ'd in the Infancy of the Republick, when none but Embassadors wore Gold Rings; but afterwards *Senators* wore them, from whom the Custom of wearing (*x*) them was derived down to all Gentlemen and Freeborn. When Embassadors had *Audience* of any Prince, he honour'd them so far, as to set them by him; as *Nicetas* relates in the Life of *Angelus Isaacus* the Emperor.

The C O M M E N T A R Y.

(*t*) [*Embassadors, &c.*]

'Tis a common saying in the Mouths of all Men, [*That Embassadors are held sacred and Inviolable*]. *Marcianus* the Lawyer saith, that their Sanctity proceeds from a certain Herb call'd

Verz

Vervain, which the *Roman* Legates were wont to carry with them, as a Badge of their Office, and that by the Laws of Embassy, they ought to be secur'd from Affronts and Injuries; hence, saith *Statius* the Poet.

Et Sanctum populi per secula nomen.

And indeed, there is a great deal of Reason for it; for if there were no Embassadors, and all Entercourse by Letters disallow'd between Enemies, all Humane Commerce would be quite destroyed, and all Method tending to Overtures of Peace would be utterly obstructed.

Whosoever strikes or affronts an Ambassador, offends and sins against the Law of Nations. How severely was *Manlius Minutius*, and after him *Fabius* and *Sempronius* punish'd by the *Romans*, who for wronging an Ambassador, were delivered bound into the Hands of their Enemies. And it so, then what in Equity ought they to suffer, who have not only beaten, but barbarously murder'd publick Ministers; as the *Tyrians* did *Alexander's*, whom at his besieging of *Tyre*, he sent to exhort them to embrace Peace.

But *Achillas*, an *Egyptian* General, was far more Inhumane, who commanded *Dioscorides* and *Serapion*, (two of *Cesar's* Embassadors) to be immediately slain; as soon as ever he saw them, even before he had heard, or understood their Errand.

But that filthy Slut *Helena* by Name, a *Russian* Queen, is an Instance of Perfidiousness beyond all Parallel, who when the King of the *Pruteni* desir'd her in Marriage, she commanded his Courier to be buried alive: Afterward, she desir'd

desir'd that more *worthy* Persons might be dispatch'd to her Court, who when they came, namely, fifty choice Gentlemen of Authority and Honour, she commanded them to be *burnt*, and sacrificed them all in one common Flame. And after she was married, under Colour of a Feast, she caus'd 5000 of her Enemies, made *drunk* before-hand, to be savagely *butcher'd*; and then in the Epilogue of all, to consummate the Tragedy, like a desperate Wretch, she goes and *drowns* her self, and there's an End of a *Bloody Queen*.

What Cities have been ruin'd by Treachery towards Embassadors, and by the base violation of this Law of Nations? History can furnish us with many Examples; for *Corinth* was sack'd by the *Romans* for their hard Treatment, and Usage of their Embassadors, as *Cicero* informs us, who therefore advised the *Romans* to send *Pompey* against *Mithridates*, who had murdered their Embassadors, who should have been *privileged* with safety, even in the midst of Enemies. And we read in *Florus*, that the *Romans* proclaim'd War against the *Illyrians* merely upon the Account of a slain Embassador. *Suidas* writes, that the *Laconians* were visited with the Plague for expelling the Embassadors of *Xerxes* out of their City.

They that died in their Embassy, were highly honour'd after their Death; and the *Roman* Embassadors that were slain by the Enemy, had their *Statues* erected to perpetuate their Memory, as had those four whom *Laertes Tullinius*, the King of the *Volentes* had barbarously murder'd, as if they had died in the *Bed* of Honour, and had fallen a Sacrifice for the good of the Country:

(u) [*Viaticum, or Expences of their Journey.*]

This Provision or Charges was paid out of the Publick Treasury, and was call'd *Legatum*; and it was chiefly given to those, who gratuitously took upon them this noble Office; and if any one died before his Return, the Allowance for his *Port*, was not restored again, but given to his Heir.

But now, whether an Embassador is obliged to give to his Master the *Presents* that are made him, is a disputable Point, and Worthy our Consideration. Some are of Opinion, that an Embassador representing the Person of his Prince; is to be honoured as he is, and therefore the Presents he receives he must give to his Master. Others think otherwise, and illustrate the Matter by this Instance, *viz.* If any Thing be given to a Member of a Society, by Virtue of the same he hath a Right to it, and not the *Company*, the Donation being made to the Person alone, and not to the whole Body: And as on the contrary, if a Man be damnify'd upon the Account of the Fraternity to which he belongs, he stands to the Loss, and not they; so if he chance to get by it, all that accreus to him is clearly his own.

Besides, Embassadors are frequently expos'd to *Dangers*, and are often in Jeopardy against their Wills, and therefore have more need to be encouraged by Rewards, than any way defrauded. But however, the Mind of the Donor is to be consider'd, whether or no he bestow'd his Boon on the Embassador or his Master, which may be easily discern'd by the Quality of the largesse.

Q. Fab. Gurges, and the *Fabii Pictores*, and *Q. Ogulnius* are celebrated in History for putting their Presents, they received privately from *Pto- lomy* into the publick Treasury, and that before they had brought their Answer to the Senate, supposing nothing to be given to a publick Minister, but Praise and Applause for his prudent discharging of his Weighty Office.

(w) [*Honoured them with a Gold Ring.*]

It is most certain that the Ancients wore upon their Fingers, Rings of Iron. For *Pliny* tells us, that the Senate it self for a long Time together, had no Gold ones ; as *Juvenal* also intimates in that Verse. -- *Qui Lacedaemonium ptylismate lubricat orbem*, i. e. that makes his Ring slippery with Spittle. He understands here a rich Curmudgeon, it being usual with such, when in an Idle Posture, to play with their Rings, and to turn them about, to pull them off and on ; and to make them slip more glibly, they were wont to wet their Fingers with Spittle. By *Lacedaemonium Orbem*, he means an Iron Ring, because as *Pliny* informs us, they were the only People that wore them of that Metal.

There was but little Gold at *Rome* for a long while together, since Rings made of it, were given only to those that went on Embassies into foreign Parts, on Purpose to recommend them (I suppose) as more honourable to Strangers. Afterward, they grew more common and were worn by Servants, with little Heads of Iron upon them, which kind of Rings were call'd *Samothraccian* from *Samothrace*, the Place where was first invented the Art of encircling, or enchasing Iron with Gold ; so that the former

shall be inserted instead of a *Jewel* into the latter.

(x.) [*Derived down to Gentlemen and Freemen, &c.*]

Servants threw away their *Iron Rings*, and wore *Gold* ones, and can you blame them for it? When they attained to the Privilege of Free-born (or were free from Servitude) they had the *Prerogative* from the Emperor of wearing *Gold Rings*; the bestowing of which was a Token of Liberty, and also of the *Equestrian Order*; for seeing none wore them but those of that Rank (whereby they were distinguish'd from the Commons) the indulging the use of them, was a dignifying them with that Honour; so that many *libertini*, privileged with *Gold Rings*, are esteemed *Ingenui*, i. e. Free-born. *Tacitus* useth these two Phrases, *Equestri dignitate donare*, & *annalis honorare*, i. e. to make a Gentleman and to give Rings, promiscuously for one and the same Thing.

At first, *Rings* were worn on either Hand, and on any Finger, but when Luxury had engraven rich *Insculptures*, and added Gems to their Rings, they were then *transplanted* from the Right, which is more *employed*, and were put on the Left, which is more idle and disus'd; lest by the continual Offices and Business of the Right, the Jewels should be broken.

And 'tis said that both *Greeks* and *Romans* made Choice of the Finger next the little one (call'd *Annularis*, the Ring-Finger) for their Rings, for fear the Gold should be too much worn, in regard that Finger is least us'd of all the other, and cannot be extended alone.

Some

Some give this Reason ; namely, that in the Dissection of Humane Bodies (very frequent among the *Egyptians*) there was found a very slender *Nerve* reaching from that Finger to the Heart, and therefore they thought fit to honour it, as having so near an *Alliance* and Connection with the Fountain of Life.

But this Opinion which magnifies the *fourth Finger* of the Left-hand, presuming therein a *Cordial Relation*, that a particular Vessel, Nerve, or Artery is conferred thereto from the Heart ; and therefore that especially has the Honour to bear our Rings, is confuted in Dr. *Brown's Vulgar Errors* in the 217th Page of his 1st Book, to which we refer the curious Reader. *Macrobius* affirms the Gestation of Rings upon that Hand and Finger, might rather be used for their Convenience and Preservation, than any cordial Relation.

C H A P. XVII.

Of Marriages.

IT would be too a tedious Business to set down every particular Ceremony, observed by the Heathens at their solemn *Nuptials* ; I shall therefore only present you with the chiefest.

First then, one in the Name of the Bridegroom, (*y*) divin'd by the chattering and flight of Birds, whether the Match was like to prove happy or not, and this Person was call'd *Paranymphus*. And the same *Augury* was performed also by another in the Name of the Bride.

(z) They were call'd *Sponsus* and *Sponsa*, and likewise (a) *Caius* and *Caia* from one *Caia* *Caciliæ*, a celebrated Matron, who for Spinning and Husbandry was beyond all Parallel.

'Twas customary and usual for both Parties, to (b) touch Fire and Water as a Token that all Things should be common between them; as those Elements are so for the support and maintenance of Humane Life. And that was (as it were) the *Earnest* and Pledge of their Marriage, as a *Ring* is now.

The Bride was (c) begirt with a *Woollen Girdle*, and that knit so fast, that no Body could untie it besides her Husband; whereby was signified the indissoluble *Union* between married Persons.

When the Bride was conducted to the Bridegroom, a (d) lighted Torch was carried before her, shewing that the Wife is the *Glory* of her Husband.

As she was entring into her Husband's House, (e) they lifted her up a little, lest with her Feet she should strike against the Threshold, and so gather from thence some ill *Omen*.

They oil'd the Hinges of the Door, lest they should creak and make a Noise, and they (e) scatter Nuts as they entred into the Apartment of the Bridegroom, intimating thereby, that they were under the Protection of *Jove*, to whom that Fruit was consecrated; others say, it was to remind the married Couple, that they were no longer *Children* to play with Nuts.

(b) Lastly, The Husband parted with a *Spear* the Hair of his Wife, to teach her that she should rather die, than be guilty of any Thing that might dissolve her Marriage.

The

The COMMENTARY.

xiii

(1) [*Did Divine by Birds, &c.*]

The Sign or Token, which these Soothsayers in their Augury accounted most fortunate, was a *Turle* and a *Crow*, if they appeared both together; because both these Birds are so fond of their Mates, that after their Widowhood, they never desire a second Marriage.

(2) [*They were call'd Sponsus and Sponsa*]

A *spondendo*, because in their Contracts, each promised to live as Man and Wife. The Manner of contracting was commonly this: They registred in *Tables* for their greater Security the Form of the Contract, as is evident from *Juvenal*, Satire 6.

*Si tibi legitimis pactam, junctamque Tabellis
Noces amatus---.*

i. e.

" If one by Cov'nants and just Writings join'd,
" Thou lovest not----

These Tables were seal'd by certain Witnesses term'd *Signatores*; and before they began the Ceremonies of the Contract, the Man procured a *Soothsayer*, and the Woman another, whom they usually consulted; hence that of the Satirist
---veniet cum signatoribus *Auspex*.

(3) [*Caius and Caia, &c.*]

In Memory of the chaste and happy Marriage of *Caia Cacilia*, the modest Lady of *Tarquinius Priscus*. From whence sprung a Custom among them, that the new-married Wife, when she was brought Home to her Husband's House, was to use this Proverb, [*Ubi tu Caius ibi ego Caia*] by which she signify'd, that she was

Lac.

Owner

Owner of her Husband's Goods, - as well as himself.

(b) [*Touch Water and Fire, &c.*]

The meaning of this Ceremony some take to be this; the Fire being an *active* Element represents the *Man*, and the Water being *Passive* signifies the *Woman*. Others imagine, that by the *commonness* of these two Elements, was hinted the *Community* 'twixt Husband and Wife, and also of their Possessions, Goods and Chattels.

(c) [*Begirt with a Woollen Girdle, &c.*]

'Twas ty'd with such a Knot, as was call'd *Herculean*, because that *Heroe* was look'd upon by Antiquity to be the most fruitful of Men. It is recorded of him, that he left no less than seventy Children behind him at the Time of his Death; and that in seven Days Time, he deflower'd the fifty Daughters of *Thestias*, and got them all with Child. For good Luck's Sake, the Husband untied that *Knot* in the Bed, that so he might be happy in a numerous Offspring.

(d) [*A lighted Torch was carried before, &c.*]

Towards Night, when the Ceremonies were ended, the Woman was brought Home to her Husband's House with five *Torches*, signifying thereby, the want that married People have of five Gods or Goddesses: *viz.* *Jupiter* and *Juno*, *Venus*, *Suadela*, and *Diana*, who is often call'd *Lucina*.

Some think that the Use of these *Torches* was not only to give *Light*, but to represent and signify the *Element* of Fire: for no Marriages were deem'd happy, but they that were made by the *Sacrament* (as it were) of Fire and
Water

Water. These Torches were made of a certain kind of Tree (*sweating* forth a pitchy sort of Liquor) call'd *Teda*, and therefore the *Poets* call'd Figuratively, both the *Torches* and *Wedding* it self by that Name.

(c) [*They lifted her up a little, &c.*]

That is, over the Threshold, carrying her in by a seeming Violence, because in Modesty she would not appear without some *Reluctancy* to go to that Place, that should be *fatal* to her Maiden Head. There are several Reasons that we meet with in Authors of this usual Ceremony, of lifting up her Feet: But that of *Scaliger* seems most proper, which was the avoiding of the virtue of *Magical* Enchantments; which Sorcerers were wont to lay under the Threshold, either to abate Love and conjugal Affection, or to weaken the Powers and Faculty of Generation.

Besides, hitting the Foot against the Threshold was esteemed very ominous, and was superstitiously observed among the Heathens, to be a Sign or Token of Divine Anger. It is observ'd, that *Gracchus* upon that very Day on which he was kill'd, did grievously wound himself by stumbling on the Threshold.

(g) [*Anointed the Hinges and scatter'd Nuts.*]

For the former Ceremony, the Wife was called *Uxor quasi Unxor*. And as for the scattering of *Nuts*, some give another Reason besides that mentioned by our Author; namely, Nuts were scattered by the new married Couple, because, when strewed upon the Ground, the Boys scrambled for them: So that the pleasant Cries and transporting Sighs in the Amorous Wars might be overwhelmed and drowned.

(b) [*Divide her Hair with a Spear, &c.*]

That is, with the Top of a Spear, wherewith some Fencers had been formerly kill'd. This Spear was call'd by them, *Hasta Celikaris*, and the Ceremony betoken'd that nothing should separate them, but such a Spear, or such like Violence.

C H A P. XVIII.

Of the Games of the Ancients.

THE *Gracians* in *Arcadia*, between *Pisa* and *Elis*, two Towns of *Greece* in the *Olympick* Fields, did institute in Honour of *Jupiter*, certain *Olympick* Games, wherein Horses and Chariots run Races in the *Stadium*, and the Combatants (i) fought with Clubs and *Whorlbats*, which were Thongs and Straps of Leather, wound about their Hands, and tagg'd with Plummets of Lead and Iron; with these they contended, by casting them up into the Air, as *Virgil* tells us in his fifth Book.

They engag'd also in *leaping*, wherein he was *Victor* who jump'd farthest. The Conquerours were (k) crown'd with a Garland of Olive (which was very plentiful in that Country) and were exempted from many burthensome *Impositions* in the Commonwealth; nay, had *Salaries* for their Lives, or *Annuities* out of the Publick Exchequer.

They used also Sports, not much unlike these, in *Isthmus* and *Argos*, which they call'd *Isthmian*, *Nemeean* and *Pythian* Games, and were the same in effect with those I have mentioned. Some say they

they played at them with *Darts*; others, with *Quoits*.

The *Romans* invented more cruel Sports; for (1) they were wont to make Men encounter one another in the *Amphitheatre*, which Exercise was afterwards forbidden by Christian Emperors. Condemn'd Malefactors were (m) to fight with Lions and Bears, with Leopards and other Beasts. And many Christians, but (n) particularly *Ignatius*, was condemn'd to this kind of Death: They instituted also *Chariot-races* in the great *Cirque*; of which see in the 2d Chap. of the 2d Sect. and Page 57.

THE COMMENTARY.

There were among the *Gracians* four sorts of Games more especially famous, viz. the *Olympick* and *Isthmian*, the *Pythian* and *Nemean*.

[*Certain Olympick Games.*]

These were kept every fifth Year in the Mount *Olympus*, and instituted by *Hercules* in the Honour of *Jupiter*; in this Game, *Corylus* an *Arcadian* won the first Prize, though some say *Hercules*. There were wrestling and leaping, running with Horses, and running on Foot, courneying together with coursing Chariots; the Contention of Poets, and Disputations of Philosophers; the Combats of Orators and eloquent Rhetoricians; there Wars were proclaim'd, and Entrances made into Leagues of Peace, where the Rewards of the Victor were Garlands of Olive.

[*Which they call'd Isthmian*]

These were devis'd by *Theseus* in Honour of his Father *Neptune*, environ'd with a dark Wood

of Birch Trees; they who won the Victory had a Garland of Pine-Tree.

[*Nemæan and Pythian.*]

Nemæan, nam'd of the Forest of *Nemæa*. The People of *Argos* kept solemnly this Feast, in reverence of *Hercules* that slew the mighty Lion, whose Skin he wore for a Coat of Armour.

The *Pythian* were in Honour of *Apollo*, in Memory of his vanquishing the great Dragon, that was sent by *Juno* to persecute his Mother *Latona*.

(i) [*They fought with Whorlbats.*]

The manner was thus. The Combatants had in each Hand a Strap of Leather, wherewith they struck at each other, for you must know that this kind of fighting succeeded *Fifty-Cuffs*, wherein the Striker hurt his own Hand, as well as he did the Party whom he struck. Hereupon they invented this other kind of fighting with leathern *Switches*, which they call'd *Cestus*, from the Greek Word *κεσς*, which signifies a Belt or Girdle.

To make the Encounter more *dangerous*, they were wont at length to tag these Thongs with Pieces of *Lead* and *Iron* at the end; so that with the Force of the Strokes, they oftentimes dash'd out one another's Brains; and lest through the Weight of Lead or Iron, the Strap might chance to fly out of their Hands, they fastned it to their Arms or Shoulders; and there was reason for it, in regard those iron or leathern Pieces were very *heavy*, being made in the Shape and Bigness of Rams-horns.

(k) [*Were crowned with Olive, &c.*]

Besides those Rewards which were peculiarly design'd for every Combatant, all Victors in general

neral were crowned with *Palms* and *Praises*; nay, they were not only laden with Honours, and return'd in *Chariots* with triumphant Pomp, but had *Salaries* and *Pensions* for their Lives: Nay further, so strangely superstitious were the Ancients, that they were almost *enroll'd* in the Number of the Gods.

(1) [*They made Men encounter one another in the Amphitheatre, &c.*]

The Author understands the *Roman* Fencers or Gladiators. The first Original of which Sword-playing to the killing one another was deriv'd from a customary Practice among the Heathens at the Burial of their Friends, who were perswaded that *the shedding* of Man's Blood would be a *Propitiatory* for the Soul of the deceas'd. Hence they were wont to buy *Captives* and *Slaves* on purpose to be sacrific'd at Funerals; afterward, to render more pleasant this cruel Spectacle, they chang'd their Sacrifices into a *Fencing* with Art, wherein the Combatants contended and fought for their Lives: At first, none would hazard themselves but *Captives* and *Fugitive Servants*, who were forc'd to it, being bought to that end; afterward the *Free-born* suffer'd themselves to be hir'd, and were term'd [*Auctorati*] Hirelings; yea, the Nobility themselves of decay'd Fortunes, to merit the Emperor's Favour and Love, endanger'd their Lives in these kind of Conflicts.

The manner of this cruel and bloody Spectacle was this; the *Exhibitor* or Master of the Shew, did by a publick Bill give notice to the People of the Day of the Prize, for the procuring a greater Concourse of Spectators. At the Time appointed they produc'd two sorts of Weapons,

1. *Lusoria Exercitoria*, as Spears, Wands and Cudgels, that they might *test* the one, and *sence* with the other, and shew their Feats of Activity, all which were but preparatory to the more dangerous and solemn one ensuing. 2. *Decretoria*, with which they really encounter'd each other for Life and Death, and therefore sometimes they were called *Pagnatoria*.

(m) [To fight with Lions and Bears, &c.]

Here we may observe two Things, 1. That excellent Skill in any Art did *mitigate* the Severity of Punishment. A certain Smith, merely for his Ingenuity, was favour'd with his Hand, which was condemn'd otherwise to be lop'd off. And we read of a *nimble-tongu'd* Lawyer, who being provok'd by his *Antagonist*, against whom he was pleading, threw his Knife at him and kill'd him; for which being sentenc'd to die, he presently cry'd out, *ad Bestias, ad Bestias*, intimating thereby, that for his Eminency in the Law, he deserv'd Life and a Pardon. 2. Tho' any Malefactor happen'd to *conquer* a Beast or two, yet he was not discharged, but was to encounter others, till he was killed himself. The Man very seldom prevail'd over the Beast, but on the contrary, one Lion hath been too hard for two hundred Men.

There is a remarkable Story to this Purpose: A certain Roman Slave, call'd *Androclius*, or *Androchus*, having run from his Master, lived in a Wilderness, where a Lion came to him bemoaning himself, being tortur'd with a Thorn that stuck in his Foot. The *Fugitive* at first was frighted at his Approach; but the Lion coming nearer and nearer, and laying his Foot in his
Lap,

SECT. IV. *Of the condemn'd to the Mines.* 231

Lip, intimated a Desire of some kind of Help, which when *Androclius* perceived, he pluck'd out the Prickle, and gave him Ease. It happen'd afterwards, that this Fellow was condemn'd to this Punishment; and it fell out so, that this very Lion was brought into the Cirque for *Androclius* to fight with, where, instead of attacking him, he tamely and civilly fawn'd upon him.

(n) [*Particularly Ignatius, &c.*]

It was no unusual kind of Martyrdom in the Times of the Primitive Church, thus to expose holy Men to the Fury of wild Beasts, as appears by this Example of *Ignatius*, who rejoic'd (as he said) *to be ground into Meal by the Teeth of Savages, that so he might be turned into pure Manchet.*

C H A P. XIX.

Of those that were condemn'd to the Mines.

TWAS the Custom to condemn those Malefactors to dig Metals, Sulphur, Lime, &c. whom they did not intend to punish capitally. They dug chiefly in *Proconnesus* (as it is express'd in the Civil Law) which is an Isle in the *Propontis*, now call'd *Marmora*, very pregnant with Metals. They were also condemn'd to the Island *Gypsus*, to the Red-Sea, and to other Places.

'Twas a dismal kind of Punishment, as *Cyprian* complains in his 25th Epistle; for they never saw the Light of the Sun, and never slept but as they

they lay on the Ground. They were so chang'd and alter'd, that they grew quite out of Knowledge.

Many *Christians* under the Persecution of Pagans suffer'd this Punishment, which yet afterward grew out of use, in regard Princes now do (o) not condemn to the *Mines*, but to the *Galleys*.

A Thing which the *Romans* never practic'd, who would not suffer their Servants to handle the Oar. They bought their Slaves for necessary Offices, but they gave them their *Liberty* before they would employ them at the Oar; as we read they did, when they wanted Rowers against the *Carthaginians*.

And it was prudently done, for oftentimes by the Treachery of our Slaves, we have been conquer'd by our Enemies. This Custom was introduc'd to save Charges, but not without a great deal of Danger; where ore the Ancients never made use of their Servants in their *Galleys*, so far were they from forcing them to it.

The C O M M E N T A R Y.

There is a Difference betwixt these two Phrases, *Damnare in Metalla*, and *Damnare ad Opus Metallum*; for the first wore greater and heavier Fetters than the last. The Reason was this, because they that were condemn'd in *Metalla*, were compell'd to settle and to stick to their Work, from which there was no necessity of leaving it; so that moiling in the Place they were first fix'd in, they might dispence with bigger Chains, without hindring their labour.

But they that were condemn'd in *Opus Metallum*, had lighter Irons, in order to their Readiness

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for any kind of Work. These did not al-
ys dig, but sometimes exported; and some-
times melted, and did other Offices belonging
to the Mines, and therefore would more easily
be hindered by ponderous Links.

(o) [*Not condemn'd to the Mines, but to the
Galleys*]

And indeed whosoever undergoes this severe
punishment, 'tis hard to tell whether he be-
ongs to the Catalogue of the *Dead* or *Living*;
he is daily expos'd to a thousand Deaths,
yet scarce ever dies; so that his *Life* is a
torment; and *Death* an Ease and Refreshment
to him.

C H A P. XX.

Of Funeral Rites and Ceremonies.

If any Person of Note dy'd, he was (p) kept
seven Days at Home, and burnt on the eighth
with pompous Obsequies, which *Virgil* describes
in the sixth Book of his *Æneids*.

--- *Principio pinguem talis, & robore secto, &c.*

q) "First an huge Pile of sappy Pine erect,
And cloven Oak with fable Branches deckt.

Afterward a *Cypress* Tree was set up, and cover'd
with the Arms of the Deceas'd. They wash'd
the Corps with a little warm Water, and then
ointed it with odoriferous Oil.

In the next place, they bewail'd and lamented
the dead, and laid him upon a Bed, and then
cover'd him with the richest Garments they
had, and having sprinkled him with Oil and
Frank-

Frankincense, they laid him on a Pile hollow within, and neatly order'd.

They put also in to him a *Dog*, an *Horse*, and his darling *Servant* whom he lov'd best, and then turning from the *Pyre*, they set it on Fire with burning *Torches*. And when they had done, on the ninth Day, when the Body was burnt, they (r) gather'd up the Bones and Ashes; and having wash'd them with Wine, they put them into a brazen or an earthen *Urn*, and then surrounding the *Herse*, they sprinkled it with an Olive-Branch dipt in Water, fancying it to be purify'd by that kind of Ceremony; when the Party was dead, they repeated these Words, *Vale & I, licet*.

Those that were not burnt, they embalm'd with Unguents and sweet Perfumes. The Nobility commanded their Free-men to keep a Lamp always burning on their Tombs, and to watch by it.

Nine Days after the Decease of the Party, they instituted in Honour of his Memory, certain Plays or Games, call'd *Novendiales*; which Sports were running of Horses, and killing of Beasts, fighting of Servants and Gladiators in the Amphitheatre. They made also on the same Day a sumptuous Feast for the People in the *Forum*, as you may see in the 40th Book of *Dion*, and in *Cicero's* Oration for *Murena*.

When *Quintus Maximus* made a Feast for the Roman People, in honour of his Uncle *Africanus*, *Quintus Tubero* was ask'd by him to do the same, in regard he was *Africanus's* Sister's Son; he did so, but cover'd very mean Couches with Goat-skins, and set upon his Table earthen Vessels, which sordid Action the People of Rome did

ness for any kind of Work. These did not always dig, but sometimes exported; and sometimes melted, and did other Offices belonging to the Mines, and therefore would more easily be hindred by *ponderous* Links.

(o) [*Not condemn'd to the Mines, but to the Gallies*]

And indeed whosoever undergoes this severe Punishment, 'tis hard to tell whether he belongs to the Catalogue of the *Dead* or *Living*; for he is daily expos'd to a thousand Deaths, and yet scarce ever dies; so that his *Life* is a Torment; and *Death* an Ease and Refreshment to him.

C H A P. XX.

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Afterward a *Cypress* Tree was set up, and cover'd with the Arms of the Deceas'd. They wash'd the Corps with a little warm Water, and then anointed it with odoriferous Oil.

In the next place, they *bewail'd* and lamented the dead, and laid him upon a Bed, and then cloath'd him with the richest Garments they had, and having sprinkled him with Oil and Frank-

and fill'd the Air with Shouts and Out-cries, hoping that if the Body had been only in a *Swoon*, or *asleep*, this *Vociferation* might have rowz'd and awaken'd it. This Action or Ceremony was term'd *Conclamatio*.

(q) [*A Pile was erected.*]

For their manner of burying, was not an *interring* of the Corps in the Earth (as it had been formerly) but *burning* them in the Fire; the Reason hereof being to prevent the Cruelty of their Enemies, who in a merciless Revenge, would dig up at their Conquests the buried Bodies, making even the Dead the Subjects of their implacable Fury.

This Fire, before the kindling, was properly call'd *Pyra*, in the time of burning, *Rogus* (*quod tunc temporis rogari solent manes*) and after the Conflagration, it was call'd *Bustum*, q. *Beneustum*, i. e. well burn'd or consum'd.

(r) [*Gather'd up the Bones.*]

The Reason was, lest they should be *remov'd* to another Place to be bury'd, and so the Ceremonies be repeated, and the *Grief and Charges* be renew'd and doubled.

(s) [*There was also an Eagle ty'd, &c.*]

Of this you may consult the 4th Book of *Herodian*, where he copiously describes the *pompous* Ceremony at the Funerals of Emperors.

C H A P. XXI.

Of Nomenclators.

IT will not be impertinent and *foreign* to our Purpose, to mention in this Place an ancient Custom. (t) The *Romans* had certain Servants, who

learnt to know every individual Citizen, to remember them by their *Names*; so as oft as they met any of them, they their Masters who they were, that so they it salute every one by his *Name*, and by means might insinuate themselves into their ear; for (as *Plutarch* saith) a Man is better lov'd when he is called by his *Name*, and is more kind and obliging to the Party that calls

) These Servants were call'd *Nomenclatores*, in *Cicero* mentions in his Speech for *Muræna*, telling us that *Cato* had a *Nomenclator*, who told him the Names of all he met. This was much in use among all those who stood before Magistrates, who after they were chosen, were address'd negligently by them, without taking any notice of them.

The C O M M E N T A R Y.

) [*The Romans had certain Servants, &c.*] It was an old Custom at *Rome*, that on Comitior Court-Days, which were proclaimed by Edict, either of Consul, Magistrate, or any other power'd to call an Assembly: I say, it was customary on these Days for the Roman People to meet in *Mars* his Field, where those that stood for Magistrates (term'd *Candidati*, from their white Gowns) procur'd the Good-will of the People.

This (besides other Things) was expected in them, viz. the saluting of every Citizen by his *Name*; for the better performing of which, they had a certain Follower, which would prompt every Citizen's *Name* as he pass'd by.

(n) And

(n) *And this Servant was call'd Nomenclator.]*

Which Word doth properly signify a *Common Cryer* in a Court of Justice, such as call Men to their Appearance; whence they had their Names from *Nomen* and *Calo*, an old Latin Word, to call, sometimes styl'd *Monitor*, sometimes *Fartor ab infarciendu in Aures*.

CHAP. XXII. Of Gifts, or Presents.

ON the *Calends* of *March*, there were Gifts presented to Women from their Friends and Relations, because on that Day the *Romans* and *Sabines* engaging in a Fight, the *Women* were concern'd in the Combat, and were very instrumental in procuring of Peace.

Wherefore that Day was accounted *Festival*, and much Honour was given to Women; and (as *Juvenal* informs us) a green Umbrella, and a great quantity of Amber and other Presents were conferr'd upon them. To which *Pomponius* the Lawyer alluding, tells us, that if a Man gave a Present to his Wife on the *Calends* of *March*, or on his *Birth-Day*. the Donation was valid, provided that the Gratuity was not over great. *Juvenal* assures us, that Men on their *Birth-Days* were wont to present their Wives in these following Verses.

*En cui tu viridem Umbellam cui Succina mittas
Grandia, natalis quoties tedit aut medium Ver
Incipit, & strata positus longaque cathedra,
Munera Fæmineis tractas secreta Calendis.*

i. e.

i. e.

‘ Lo here to whom the green Umbrella went,
 ‘ To whom the goodly Amber Bowl was sent
 ‘ Upon his Birth-Day, or when the humid
 Spring,
 ‘ Did with it self the Female Calends bring.

On the Feast of *Saturn* (i. e. the second of December, which is the Solstice) *Presents* were wont to be made to the Men; and so they were also (for good Luck’s sake) on the first Day of the Year; wherefore *Suetonius* tells us, that all Ranks and Degrees did on the Calends of *January* bring *New-Years Gifts* to *Augustus* even in his Absence) in the Capitol.

But because that Custom was extended to more Days, *Tiberius* therefore forbade the giving and receiving of New-Years-Gifts, but only on the Calends of *January*. (x) And *Caligula* declared by an Edict, that he would receive from any body on that Day. That Custom, though quite laid aside by the Ancients, yet is still retain’d and observ’d amongst us.

The C O M M E N T A R Y.

(w) *Brought New-Years-Gifts, &c.*]

The Original of which is almost as ancient as the City of *Rome*, the use whereof grew and increas’d by the Authority of King *Tatius*, who was the first that receiv’d *Vervain*, from a Tree out of the Wood *Sterna*, as an auspicious beginning of a New-Year; from thence came the Word *Sirena*, which signifies a New-Years-Gifts. Some derive *Sirena* from *pevde*, *luxus*, implying the Wish of them that gave it,
 viz.

viz. That they to whom they gave it, might rather live plentifully with Delight.

(x) [*And Caligula, &c.*]

Marcellus Donatus, on *Suetonius's Tiberius*, cap. 34. shews that *Augustus* and *Tiberius* were far from Covetousness in the Receipt of New-Years Gifts; but that *Caligula* was basely impudent, he himself using to stand ready, whilst all sorts of Persons brought their Gifts to him, as particularly *Suetonius* relates in his *Caligula*, cap. 42.

C H A P. XXIII.

Of Hours, and of the Clepsydræ.

(y) **T**HE *Hours* of the Ancients much differ'd from ours, for they reckon'd twelve Hours in a Day, longer or shorter, according to the Length and Brevity of the Day and Night. But after the Invention of Bells, they divided the Day and Night into twenty four Hours. And therefore to this end they had *Sun-Dials*, call'd *Solaria*, and in cloudy Weather they made use of these (z) *Clepsydræ*, which was a kind of a *watry Clock*, made after this manner.

They took a *Glass*, which had an Hole at the Bottom, edg'd about with Gold, to keep it from wearing, and from being impair'd by the Water. On one side of this Vessel was drawn a *strait Line*, which had the twelve Hours inscrib'd upon it: Then they fill'd the Glass with Water, which distill'd Drop by Drop through the afore-mentioned Hole, and put a *Cork* into the Water, to which was fasten'd a small *Tongue*, or Needle, which pointed to the first, second (the

(the Water still dropping) and the rest of the Hours.

The C O M M E N T A R Y.

(y) [*The Hours of the Ancients, &c.*]

Pliny tells us in the 60th Chapter of his 7th Book, and *Censorinus* (*de Die Natali*) and *Varro* in his fifth Book of the Latin Tongue, that for the space of above three hundred Years, the use of Hours was not known at *Rome*, and that the twelve Tables made no mention at all of them. And they say that the *Egyptians* were the first that made *Horologia*, and then the *Grecians*, which were call'd by Antiquity, *Solaria* and *Sciateria*, and *Horographia*, and *Clepsydra*, because they were made by the measuring of Water, a Description whereof you have given by our Author. That these were afterward in use among the *Romans*, is clear and manifest, and that first by *Scipio Nasica*.

Formerly they were wont to reckon the Day in a continued *Series*, from Midnight to Midnight: But as soon as the *Romans* understood the use of Hours (which was about three hundred Years after the building of the City) they then learn'd to distinguish the Night from the Day, and ascrib'd twelve Hours to the one, and twelve to the other.

The *Diurnal* Hours were reckon'd from Sun-rising to Sun-setting, and the *Nocturnal*; from the Sun-setting to Sun-rising. And thence it was that the Hours were unequal, according to the Length and Shortness of the Days and Nights.

(z) [*Clepsydræ.*]

These *Clepsydræ* were chiefly us'd in a City
M
Achanta,

Achanta, beyond the River *Nile*; where among other Things, there was an huge Vessel, into which three hundred and sixty Priests brought daily Water from the *Nile*, which from thence running out again, did instead of a *Clock*, compute the Hours.

The CONCLUSION.

These are the Things which occur'd to me concerning those *Arts* and *Customs* which were formerly in use, but are now either altogether unknown, or else are quite laid aside. In the reciting whereof I have wav'd a Discourse of the *Religion* of the *Pagans* (not caring to concern my self in such Abominations and Vanities) and also of *Laws*, so often alter'd and chang'd, being conscious to my self, that such a *Field* of Matter would require another *Volume*.

And I do not at all doubt but that I have omitted many Things worth our Consideration; but I thought it sufficient to touch upon some of the chief and principal.

Now I proceed to those Things which were utterly unknown to the Ancients. And first of the *New-World*; with which we will begin the Second Book.

The END of the First Book.

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THE



THE 69003
HISTORY
OF

Many memorable Things lost,
Which were in Use among the Ancients :

AND

An Account of many excellent Things
found, now in Use among the Moderns,
both Natural and Artificial.

Written Originally in Latin,

By **GUIDO PANCIOROLLUS** ;
And now done into *English*, and illustrated with
a new Commentary of choice Remarks, pleas-
ant Relations, and useful Discourses, from
SALMUTH's large Annotations; with several
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V O L. II.

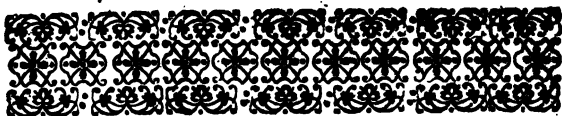
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First, A Supplement to the Chapter of Printing, shew-
ing the Time of its Beginning, and the first Book
printed in each City before the Year 1500. *Secondly*,
What the Moderns have found, the Ancients never
knew: Extracted from Dr. *Sprat's* (late Bishop of
Rock ster) History of the *Royal-Society*, the Writings of
the Honourable Mr. *Boyle*, the *Royal-Academy at Pa-*
ris, &c. *Thirdly*, An Index to the Whole.

L O N D O N,

Printed for *John Nicholson* in Little-Britain, and sold by
John Morphew near Stationers-hall. 1715.





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OF THE
Second Book.

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Some Modern Inventions unknown to
the Ancients.

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Chap. XXIV.



T H E
Second BOOK
O F
PANCIROLLUS.

Concerning several Modern Inven-
tions which were unknown to the
Ancients.

C H A P. I.
Of the New World.



AMONG those Things which were unknown to Antiquity, I suppose the (a) *New World*, found out by *Christopher Columbus*, a *Genoese*, in the Year 1492, to be one of the chiefest, and to be most worthy our Notice and Observation. (b) There was no Knowledge of it in former Times, save only that the *Fortunate Islands* were said to be there, the Belief whereof
[Vol. 2.] N might

might possibly be instill'd by Navigators. And indeed that is a wonderful Thing, and the most stupendous of all those we are capable of knowing, and I have been oftentimes struck with Admiration of it.

After the Discovery of this World, we (b) came to the Knowledge of several kinds of Animals and Plants, and of various Curiosities or Pieces of Art, of which hitherto we were utterly ignorant ; as *Cocks*, and *Indian Mice*, (d) *Guaia-cum*, or holy Wood, (e) *China*, (f) *Sarsaparilla*, (g) *Sassafras*, and other wholesome and medicinal Herbs, the use whereof hath been very necessary since the *French Disease* (call'd by some the *Neapolitan*, because brought to *Naples* by the *Spaniards* returning from the Isle of *Peru*) (h) was known in these Countries.

From thence came also (h) *Indian Figs*, (k) *Nuts* and *Canes*, and a *vermicular* kind of Web made of *Silk*, together with certain (l) Pictures compos'd of *Birds Feathers*, so neatly express'd, that even *Painters* themselves cannot represent them more lively in their Colours. There were brought also from thence *Attalick Textures*, which variously expos'd to the Air or Light, shew'd either a golden, or rosy, or silken, or any other Colour. From the same Region came also (m) *Knives* made of *Stone*, which would cut any thing, and *Slippers* made of *Indian* (n) *Rushes*, and several other Things, which to reckon up here, would seem long and tedious.

The C O M M E N T A R Y.

(a) [*The New World*.]

So call'd not in respect of its *Creation*, but in

respect of its *Discovery*, which was made but in latter Years, left with *Democritus* and *Epicurus*, with *Anaxagoras* and others, we seem to affirm a Plurality of Worlds, which fond Opinion having no Reason to support it, is quite fallen to the Ground, and is utterly exploded.

This Expression of (*New-World*) was anciently in use, it frequently occurring in *Classick* Authors; for *Ovid* writing to *Livia*, honours *Germany* with the Title of a *New World*, as *Hegesippus* doth *England*. Besides, *Great Britain* was look'd upon by the *Romans* to be another World beyond *Calais*; hence *Virgil's Melibæus* in the first *Eclogue*, clears up his Voice, and sings thus. *Et Penitus toto divisas orbe Britannos.*

“ A Race of Men from all the World disjoin'd.
And *Horace* calls them *ultimos Orbes*.

---- *Serves iterum Casarem in ultimos*
Orbes Britannos ---- i. e.

“ Preserve thou *Cesar* safe we thee implore,
“ Bounds to the World's remotest *Britain*
Shore.

And *Lucan* mentions an *unknown World* in his fifth Book, where he speaks of the *Arabians* flocking in to the Assistance of *Pompey*.

(b) [*No Knowledge of it in former Times.*]

I shall not launch out into that great *Dispute*, whether the *New World* was known to the *Ancients* or not, nor make an Enquiry whether it was discover'd to 'em under any other Name; but rather than transcribe the Arguments *pro* and *con*, shall refer the Reader to *Dr. Heylin's Cosmography*, and to other Authors that treat of that Subject.

(c) [*We came to the Knowledge of several Things.*]

Which indeed are so many, that it would be an infinite piece of Business to comment upon them, and would be a Work too voluminous for these few Pages. And therefore touching the Nature and Situation, the Habit and Manners; the Animals and Fruits, and other Things relating to the *New World*, I crave leave to send the Curious to those several Treatises that have been written of the *West-Indies*.

(d) [*Guaicum.*]

This is an *Indian* Name, but is now known throughout the World, whereby is signify'd the Wood *Guaicum*, sometimes call'd *Indian*, and sometimes call'd *Holy Wood*. It is not only found in the Isle of *S. Dominic* (from whence it was first brought to us) but in the Isles of *S. John*, and the *Holy Cross*. The Island of *S. John* stands better than that of *San Domingo*; that in the former Place *moistens* the Bodies of them that use it, but this in the latter *dries* them more, because it partakes of a greater Heat and Influence of the Sun.

The *Guaican Tree* is about twelve Cubits high, and about the Thickness of an ordinary Man; it bears *Leaves* like Plantanes, hard and nervous, but somewhat lesser, rounder and stronger. Its *Flower* is yellow, and its *Fruit* about the bigness of a Walnut, and not unlike Chesnuts or Olives. 'Tis of a triangular Figure, and hath a white Kernel, and the pleasant taste either of Chesnuts or Pine-Apples; so that it kindly invites you to the delicious *Banquet* of its sweet self. The Rind of *old Trees* is black and swarthy, but of young *Saplings*, ruddy and sanguine, but is somewhat inclining to be dark and cloudy;

under which is to be seen a pale kind of Wood; but more inwardly obscure, and of that Hardness, that it defies the Edge of the keenest Ax. 'Tis very heavy and *resinous*, and hath a fatty kind of Smell, a sweet Taste, though a little bitterish, but somewhat sharp and acid in a Potion.

Though some think *Sanctum Lignum* and *Guaiacum* to be two distinct Things, yet others affirm them to be one and the same; though they differ in Colour, Bigness and Weight; for what though the former is *white* both within and without, and the latter *black*? The Reason of that is this, because *Lignum Sanctum* is more stricken in Years than is your *Guaiacum*; for this, the older it is, the *black*er it is, and so consequently 'tis so much the *whiter*, by how much the *younger*.

The use of this Wood came to be known to us after this manner. A certain *Spaniard* having received an unlucky Blow with a *French Faggotstick*, given him by an *Indian Doxy*, and being sorely tortur'd with the Anguish of the Stroke, his *American* Servant gave him a Dose of the Water of *Guaiacum*, which cur'd his Disease at a Clap, and made the *Wight* capable of cutting a Caper; so that several other *Dons* seeing the effect of the Medicine, made use of it afterward with the like Success in the same Distemper. This Cure being blazon'd in *Sevil* by all those that came from the Indies, was immediately spread throughout all *Spain*, and the Fame thereof was presently on the Wing, and flew in a trice over the whole World.

(e) [*China.*]

The Root of this is by way of Excellency
N 3 call'd

call'd *China*, from that vast Country where it grows, by some styl'd *Chinna*, by others *Cina*, by the Natives *Lampatan*. 'Twas first known to the *Indians* in the Year 1535, for then the French Disease was cur'd with *Guaiacum*, which when it was first brought out of the *Spanish Indies*, was worth its weight in Gold; but upon the Discovery of the Virtue of this Root, it sunk very much in its Value, especially in the *East-Indies*, where it was laid almost wholly aside, and as an *Alien* made to give place to the other which was a *Native*.

This Plant is but a *Pigmy* or a Dwarf in Stature, being not above three or four Spans in height, but hath slender Stalks, and those well clad with Leaves. It climbs up Trees like creeping *Ivy*, and hath an excellent *knack* (like that Vegetable) of *hugging* closely, and therefore 'tis fit and convenient that it be bless'd with the *Neighbourhood* of other Trees.

It hath a Root about a Span long, and that sometimes *thick*, and sometimes *slender*, which being pull'd *fresh* out of the Earth, is so soft and tender, that it may be eaten either raw or boil'd. The *Chinese* eat it, when tender, with stew'd or boil'd Meat, as we do Turnips. Merchants and Mariners tell us they grow in *Fens* and *Mountains*, and oftentimes in Woods, out of which they are frequently dug.

That is the best which is ponderous and fresh, firm and solid, neither rotten nor Worm-eaten, nor falls into Powder when cut and slic'd, and which is ruddy without, and white within. This Root seldom comes out of *China* to us whole and entire, but always putrify'd and corrupted (for scarce one in four is good for any thing, the
Knavery

Knavery of Merchants to conceal its Rottenness, putting *Bole-Almonack* into it) and the Reason of it is not so much the Distance of the Place, as the *Heat* of the Climate, whither Merchants and Mariners do not only *sail*, but oftentimes *stay*, either to victual their Ships, or to avoid a Storm, and so are forc'd to endure those excessive Heats between the *Tropicks*, where the Moisture of the Root must needs be dry'd up.

This Root being incident to two *Faults*, either to be spongy or light, or to be corrupted or *Worm-eaten*; the latter are to be chosen before the former, provided they are *ponderous* and *weighty*; for a Decoction of the *light ones* will soon putrify, neither have they any Virtue to be medicinal to the sick.

(f) [*Sarsaparilla*.]

When the Physicians mention this, they understand its *Root*, which is the only thing that comes to us; 'tis a Plant that hath many Roots about two Cubits long, and in Colour like Ashes; it grows sometimes so deep in the Earth, that to pull it out entire, they must dig very low; its Branches are knotty and woody, and are quickly dry'd. Whether it bears a Fruit or a Flower is not yet well known.

The *Spaniard* was the first that gave it this Name, who *christen'd* it as soon as ever he saw it, in regard of its likeness to *Smilax Aspera*, which is a *spinous* kind of Plant, bearing Leaves like *Ivy*, and which they call in their Language, *Sarza-parilla*, i. e. a Thorny Vine, *Sarza* signifying the former, and *Parilla* the latter.

An eminent Physician, and a skilful Herbalist tells us, that he saw in the Duke of Florence his Gallery, a whole entire Plant of *Sarsaparilla*,
N. 4.
brought

brought out of *Spain*, which did not in the least differ from *Aspera Smilax*, and he found it afterward by Experience to be true; for having pull'd off the Roots of *Aspera Smilax*, with a Decoction of the same, he cur'd many that were infected with the French Disease. The same is confirm'd by *Gabr. Fallopius*, the Glory and Ornament of *Italian* Physicians; who tells us, that he knew by Experience the Root of *Sarsaparilla* to be the same with that of *Aspera Smilax*, because it hath the same Matter or Substance, Marks and Virtues: For (saith he) I have frequently us'd it in the Cure of the French P--, instead of *Sarsaparilla*.

This Root was brought first from *New-Spain*, but *Peru* produceth much better. They begin now to bring it from the Province of *Cuito*, it growing in abundance near the City *Gnajaquil*, hard by a great River of that Name, which springs from the *Peruvian* Mountains. The Water of this River is very wholsome and medicinal, curing many Diseases, and the *Spaniards* and *Indians* come above six hundred Miles to it; who washing themselves in it, and drinking great Quantities of it, do sweat very much every Morning, and so by that Means are freed from their Distempers. Some think that *Sarsaparilla* derives its Virtue from that River.

This Root commonly shoots forth (like Hellebore) into many *Fibres*, dispers'd very wide and deep in the Earth, even more than six Cubits, and being folded and wrapt up together, they grow into Bundles of three or four Pound weight. Some of the *Strings* or Threads about these Roots are thin and slender, and others are more thick and bulky. These Roots have a white,
ner-

nervous, hard kind of Fibre running through their *Centre*, which is call'd their *Soul*; the Rind is solid, like compacted Flesh that involves the Marrow, it hath neither Smell nor Taste.

That *Sarsaparilla* is to be chosen as the *best*, which is white, thick and clammy, hard to be broken but when it falls into Fitters; for the red and wither'd, the putrify'd and rotten, and that which crumbles into Powder, is very *useless*. That is naught also which hath a dirty, *luteous* kind of Colour within, wherein you may see very legibly the Marks and Footsteps of Worm eating and Corruption.

(g) [*Sassafras*.]

'Tis call'd by the *Indians Pavame*, by the *French* (whom the *Spaniards* imitate) *Sassafras*. 'Tis like a middle-siz'd *Pine* both in Form and Bigness; having a naked Trunk, whose Branches spread towards the Top like a prun'd *Pine-Tree*; it hath a dusky kind of *Bark*, cas'd over with a thin Ash-colour'd Film, and hath a tart *acrimonious* Taste, but very *aromatical*, not much unlike that of Fennel; so that a small quantity of its odoriferous Breath, will easily perfume a whole Room.

Its *Trunk* and Branches are of a white Substance, somewhat inclining to an Ash colour, but not of so *aromatical* a Taste as the Rind. Its Leaf is triangular, not unlike that of a *Fig*; but its fresh ones resemble those of a *Pear-Tree*; but are always green, *i. e.* there is always a Succession of new Leaves, though of a more *cloudy* Verdure, and fragrant, if dry. 'Tis uncertain whether it bears a *Fruit* or a *Flower*; it hath sometimes thick, and sometimes thin and tender Roots, according to the Size and Bigness

of the Tree. There is an Ash-colour'd kind that sticks close to the Root, and is more *aromatical* than the Bark of the Tree, so that a *Decoction* of the Root is sweeter, and more excellent, and is in very great use among the *Spaniards*.

Sassafras grows in *Florida*, a certain Province of the New-found World; and there, in maritime and temperate Places, neither too hot nor too dry, nor too moist, as in the Port of *S. Helen* and *S. Matthew*. 'Tis not easily found any where else throughout the whole Country, but in this Province there are whole *Woods* of it, which by reason of their Fragrancy, the *Indians* at first arriving, took them for *Cassia* and *Cinnamon*, and not without good Reason, since the Rind of this Tree is as sweet as the latter, and a *Decoction* of it, hath the same Effects as one made of that spicy Tree.

The *best* to be chosen, is, first the Root, and then the Branches, and then the Trunk, but yet the *Bark* excels them all. The *Indians* apply fresh and green Leaves, well beaten and bruised, to Sores and Wounds, but reserve the dry ones for other medicinal Uses. This Herb hath very great *Virtues* against various Diseases, of which you may read more, and find very good Satisfaction, in Volumes that treat of Physical Prescriptions.

(b) [After that Disease was known in these Countries, &c.]

That *Indian* Distemper was propagated in *Europe* after this manner. *Columbus* returning from his Voyage, which he took in quest of another World, was fraught not only with *Indian* Women, but *Soldiers* also to *Naples*, where his

his Catholick Majesty was waging War with *Charles* the Eighth, King of *France*. Those Soldiers thro' too much Familiarity with these *American* Females, groaning more under an *Infection* than the *Weight* of Money, did communicate Part of their Effects and Merchandize, to those who were engag'd in *Italian* Expeditions. These *Spanish* Soldiers being more subtil than strong, and knowing how to be more mischievous by *Art* than by their *Arms*, went cunningly by Night, and poysoned their Wells: Nay, not thinking this sufficient, they brib'd the *Italian* Bakers that serv'd the Enemy, to mingle *Lime* with their Meal. And Lastly, having experienced the Misery of a contagious Infection, and perceiving it necessary for want of *Victuals*, to banish from the City the feeble and useles, they privately expell'd all the diseased *Curtezans* tho' never so handsome, whose charming Beauties did so strangely captivate the *French* Youngsters, that they ran Headlong into the *Moloch* of their Embraces, where they were justly sacrific'd to their own Lusts. And their filthy Luxury, did not only infect the whole Army, but spread the Contagion throughout the whole World.

I have either read or heard how certain Merchants being bound to serve the *French* Army, at the Siege of *Naples* with so many Tun of *Tunny*, and not able to perform it, hearing of a late Battel in *Barbary*, repair'd to the Place, and supplied the Quantity with *Man's Fleish*, dress'd in the same Manner, which prov'd so high a Feeding (most easily converted into the like) that their Bodies brake forth into loathsome Ulcers; and from that Infection the Disease
that

that takes from them the Name (not known in our Parts of the World) was introduced among us.

And *Scaliger* in his 181st Exercitation against *Cardan*, and the 19th Section, doth also affirm, that it proceeded not originally from the *Impurity* of Women, but from *Contactio*; and that the *Spaniard* did first transport these rare Wares from the *Indians*, as common among them, as the *Meazels* among us, and equally contagious.

(i) [*Indian Figs.*]

Though *Indian Figs* are of many Sorts, some thick and some thin, and have different Marks of Excellencies; yet they have the same Shape, Figure, and Colour, and the Tree it self is as tall as a Man.

Its Leaves (having a *Fibre* in the middle) are an Ell long, and 27 Inches broad. The old ones fall at the coming of new, till the Tree arrives to its full Growth, and bears ripe Fruit. It hath not a *woody*, but a *reedy* kind of Trunk.

This Tree bears a Flower (contrary to the Nature of our Fig-Trees, wherein that is *Milk*, which is a Flower in others; and therefore a Fig-Tree by *Macrobius*, is not said *Florescere*, to flourish, but *Lactescere*, to give Milk,) about the bigness of an *Eltrich-Egg*, and is of a Purple Colour: From whence, after a long increase, there shoots forth a Branch, not of a *woody* Substance, but like the *Stalk* of a Cabbage, which bears Bunches of Figs, even an hundred Clusters, and those so big, as to be a Load for two Men, and therefore may be better styl'd *Centuple*, than that in *Horace* a double Fig.

Et Nux ornat mensam cum duplici Ficu.

“ And double Figs were on the Table laid.

The Fruit of the *Indian Fig-Tree*, is pull'd before 'tis ripe, when between Green and Yellow. If hung upon a Beam, they will kindly ripen in three or four Days. This *Plant* or Tree bears but one Cluster, and is presently cut down, and in a Months Time it will grow again to its just Proportion, and is so abundantly fruitful throughout the whole Year, that it commonly serves the *Indians* for Food.

(k) [*Nuts.*]

Though the Trees of these are call'd now-a-days *Date-Trees*, by reason of that Affinity of Nature which the Former seems to have with the Latter, fructifying without a Mate of the same kind; yet they are not really the same with *Date-Trees*, because these are never observ'd to grow in *India*, but their Fruit is brought from *Arabia* thither, as we are inform'd by a Physician, who liv'd there many Years. And Experience tells us, that the *Date-Tree* (commonly growing in *Asia* and *Africa*,) will never sprout in *India*, but as soon as ever transplanted thither, it becomes barren and unfruitful: So that by those *Date-Trees*, which *Theophrastus*, *Arrianus*, *Strabo*, and others say grow in *India*, we are not to understand *Date-Trees* properly so called, but *Indian Nut-Trees*, whose Fruit the Natives call *Cacao* or *Coquos*.

The *Indian Nut-Tree* is very tall and is about four Fingers thick, having Leaves only at Top, which dilate themselves as in a Date. Its Fruit lies sheltered under the Covert of its Leaves sticking close together about ten in Number.
'Tis

'Tis rare to see one single Nut brought forth alone, every one is as big as the Egg of an *Estrich*. Its Root penetrates but a little Way into the Ground, but sticks incredibly fast considering its *Procerity*, which is so great, that climbing into the Air with so vast an Height, it *tires* the *Opticks* of gazing Mortals : But the *Indian* Gardeners cut *Stairs* (as it were) in its Rind or Bark, whereby with great Facility they ascend to the Top, even to the great Amazement of the *Portuguese*, who utterly despair of ever mounting to so high a Pitch. These Nuts are more plentiful here than Olives in *Spain* and *Portugal*, and are more abundant, than *Willows* in the *Low-Countries*.

This *Indian* Nut-Tree is chiefly admir'd for its Fruit and Wine ; the Former when ripe, affords a sweet and limpid *Juice* that is very cooling, and that so copiously, that one Nut will go near to fill a Tankard. Neither is a larger Dose of it any way hurtful, it being very pleasant and *friendly* to Nature. But if it hang long on the Tree, it coagulates and thickens into an *aluminous* kind of Substance, and hardens and dries into a Crust or Shell.

Its internal Fruit tastes somewhat like a Filbeard, but is a little sweeter, and is call'd by some *Mexicana Avellana*, a *Mexican Filbeard*. The first Rind which incloseth the inward Fruit, hardens into Wood as the Nutt ripens. If the *Cocoas* were covered with such a Bark, they might be safely carried through the whole World ; yet in process of Time, this Water is turn'd into a yellowish kind of *Ropie* very delicious, sweet, and pleasant.

The Wood of this Tree is also very profitable, of which they make Ships, and those without Nails, they being joined together, or rather interwoven by certain Strings and Fibres of the *Cacao*. And (to pass by several other Uses of it) Ropes and Cables are made of these Threads, just as they are made of Hemp among us. But after fourteen Days at least, they must be dipt and kept in the brinish Waves to keep them from rotting, which they are liable to do in fresh Water, because not smeared with a daubing of Pitch.

They weave also Sails of these Leaves, which *Indians* use instead of Tyle, and the *Portuguese* for Mats or *Coverlets* against the Sun. They make also *Hats* of them, which are much esteem'd by reason of their Lightnets.

(l) [*Pictures made of Birds Feathers.*]

By which we are to understand that *plumatile* kind of Work, of which several sorts have been in the Memory of our Ancestors, brought to us from the utmost Parts of the *West-Indies*; as Garments, Shields and various kinds of Vessels, all which were so delicately interwoven with the painted *Plumes* of *Parrots*, *Phœnicopters*, and other party-coloured Fowl, that nothing could be more delightful, or more oblige the Eye, than that pleasant *Variation*.

(m) [*Knives made of Stone.*]

Writers inform us, that the Inhabitants of these Regions, before civilized by the *Spaniards*, used (among other Things) *Knives of Stone*, with which they could cut any Thing as well as we can with ours made of *Iron*. This puts us in mind of what we read of the Priests of *Cybele*, who were wont to cut of their *Viri-*
littie

lities with a sharp Stone, according to that in the 4th Satire of *Juvenal*.

----- *Ecce furentis*

*Bellona, matrisque Deum chorus intrat, & ingens
Semivir Obscæno facies reverenda minori
Mollia qui ruptâ secuit genitalia Testâ.*

“ Behold! *Bellona*’s, *Cybel*’s Priest, the tall,
“ Grave, half Man (with no obscene part at all,
“ A Fish-shell long since cut off that) comes in
“ A *Phrygian* Mitre ty’d beneath his Chin.

Some Divines think that a *Stone-Knife*, which was used in Circumcision. And *Zippora* took a sharp Stone (’tis *Knife* in the Margent) and cut off the Fore-skin of her Son. And God said unto *Joshua*, make thee sharp Knives (of *Flint* in the Margent) and Circumcise again the Children of *Israel*. A certain Author informs us, that some Stones in the *Indies* were as sharp as Iron, and did the Work and Offices of Axes and Swords, and of other Instruments of that Metal. He tells us also, that *Razors* were made of those Stones, which supply’d the Use of Swords in slaying off the Skin of wild Beasts; and also that great Trees were made hollow to sail in by the Edge of those Stones.

Some by *Stone-Knives*, understand Blades whetted or sharpen’d with Stones, or Whet-Stones, as if the Almighty had commanded Razors or Knives to be sharpen’d with Stones, putting the efficient by a *Metonymy* for the Effect, especially since ’tis undoubtedly true, that a *Stone-Knife* was not necessary to Circumcision, and that the modern *Jews* do not use it, but rather a keen and well-set Razor.

(n) [*Slip-*

(n) [*Slippers made of Indian Rushes.*]

There is no doubt but that this *Indian Rush*, is the same with the *Egyptian Papyrus*, in regard they were equally profitable and both alike; for as that *Egyptian Rush* was very convenient for the making of Shooes, and several Utensils, as Sails, Mats, Coverlets, and the like, and there was no Vegetable more necessary for humane Uses; so the same may be said of this *Indian Rush*. Questionlets, they had *Slippers* made of this kind of *Bull-Rush*, because they were made of *Egyptian Papyrus*. *Herodotus* tells us, that the Priests of that Country wore no other.

C H A P. II. Of Porcellane.

(o) **T**HERE was never any *Porcellane* in former Ages. 'Tis a compound of *Gypsum*, beaten Eggs, and the Shells of Lobsters, which being well macerated and condensed together, is laid in some secret Place of the Earth, being designed by the Father for his Children, without the Knowledge of others.

It lies *buried* for the Space of Fourscore Years, after the Revolution of which Time, his Sons or Nephews dig it out; who having *kneaded* it again, and made it fit to work on, they frame out of it those exquisite *Vessels* most beautiful and transparent, of what Shape and Colour the Artificer pleaseth.

Their admirable Nature is conspicuous in this, that they immediately (p) break upon the Reception of Poyson. He that lays this Mass into the Earth, never takes it out again, but leaves it

it as a Treasure to his Sons, Nephews or other of his Heirs, who gain much by it, it being more valuable than Gold. The true and genuine is very rare, yet is it sufficiently adulterated.

The *Turkish* Emperors, Basha's, and other Governors of Provinces, do continually eat out of these double Vessels, the lower Part whereof is *Silver*, and the upper *Porcellane*, but counterfeit and spurious.

The COMMENTARY.

(o) [*A Compound made of Gypsum, &c.*]

The Historians of *China* describe *Porcellane* after this Manner: 'Tis made (they say) of an hard chalky kind of Earth, which when well-pounded and kneaded, they threw into a Pond mounded about with a smooth Wall, where it drinks up the Water till it is so moistned, as its Surface may be spun like a fine Web, of which they make most pliant *Porcellane*. Coarser Vessels are made of the Sediment, which lies at the bottom.

Pancirollus (you see) would have them made of Egg-Shells, Lobster-Shells, and *Gypsum*, laid up in the Earth for 80 Years. This is the Opinion of *Scaliger*, and of most Writers. *Ramuzius* in his *Navigations* asserts the contrary, and saith they are made out of the Earth, and not laid under-ground, but harden'd in the Sun and Wind for 40 Years.

But *Gonzales de Mendoza*, a Person employ'd in ocular Experience, deliver'd a Way different from all these; for enquiring into the *Artifice* thereof, he found they were made of a chalky Earth, which, beaten and steeped in Water, affordeth a *Cream* or Fatness on the Top, and a gross
Sub-

Subsidence at the Bottom : Out of the Cream or *Superfluance*, the finest Dishes (saith he) are made, and out of the *Sediment* the coarser, which they gild and paint, and not after 100 Years, but presently commit to the Furnace.

This (saith he) is known by Experience, and more probable than what *Odoardus Barboza* hath delivered, that they are made of Shells and buried under Earth 100 Years. And answerable in all Points, hereto is the Relation of *Linschotten*, a diligent Inquirer, in his *Oriental Navigations*.

Alvarez the Jesuit, who lived long in these Parts, in his Relations of *China* tells us, That *Porcellane* Vessels were made but in one Town in the Province of *Chiamsi*; and that the Earth was brought out of other Countries, but for the Advantage of Water, which makes them more polite and perspicuous, they were only made in this; and that some of them were tinctur'd blue; some red, others yellow, of which Colour only they presented to the King.

(p) [*They break upon the Reception of Poyson, &c.*]

Some ascribe the same Property and Virtue to *Electrum*, which is a Mixture of Gold and five Parts Silver. A Cup made of this, will by a spotted Arch in its inward Surface, obscuring and clouding its native Brightness and Purity, discover and shew the infused Poyson.

That *Porcellane* will not endure Poyson, not only *Pancirollus*, but one *Simon Simonius*, chief Physician to *Maximilian* Archduke of *Austria*; doth also assure us in certain Letters, which he sent with *Porcellane* from *Prague* to a Kinsman at *Leipsick*. His Words are these :

“ I have sent a Dish of precious *China*, which
 “ was found among other Things in a Chest of
 “ the *Basha* of *Buda*, who is now a Prisoner at
 “ *Vienna*. The *Turks* drink Water, Sherbet, and
 “ other Broths out of it, because by a sudden
 “ Alteration and Change in its Transparency,
 “ it is supposed to discover, and powerfully to
 “ resist Poyson. I shall not exchange it for a
 “ Vessel of *Silver* of the same Weight, for I am
 “ certain it is pure and genuine, and not in the
 “ least adulterated, which is very probable, be-
 “ cause used by so illustrious a Person among the
 “ *Turks*.

Salmuth himself had this in his Hands at *Leip-
 sick*, and drank out of it many a pleasant Draught
 of Generous Wine. And he found the fore-
 mentioned Description to be very true, *Crystal*
 it self cannot baffle *China* or *Porcellane* in Trans-
 parency.

C H A P. III.

Of the Bezoar-Stone.

(9) **T**HE *Bezoar-Stone* was altogether un-
 known in former Times. Some take it
 to be the *Tear* of an Hart; who having eaten
 Serpents, throws himself into the Water to di-
 gest his Poyson, where weeping sorely, his con-
 densed Tears are supposed to be *Bezoar-Stones*,
 and are called so.

But very falsely; possibly those Tears might
 have the same *Virtue*, but they are not really
 the same *Stones*, which are generated in *Mauri-
 tania*, and are very great Antidotes against Poy-
 son.

son. If you take but twelve Drams of it in Wine, it presently expels, and suddenly puts to flight all kind of Venome.

Another of its Effects is this; if it be laid upon the Bite of a Serpent, it secures from the Malignity of any kind of Poyson. It is good against the Plague and Pestilential Fevers, and is a sovereign Thing in many Infirmities and Diseases. The *Arabians* were acquainted with the Nature of it, as *Rhasis* who wrote a Treatise concerning it; he lived in the Reign of *Almanzor*, that Potent King of *Mauritania*, whose Power was so great, that his Dominions extended through all *Africa*, in length as far as to forty Days Journeys, and in breadth fifteen, and he commanded likewise a great Part of *Spain*. The *Latins* and *Greeks* were utterly ignorant of this precious Stone.

The C O M M E N T A R Y.

(q) [*Bezoar-Stone.*]

This Stone hath divers Names; 'tis call'd by the *Arabians* and *Persians*, *Pazar a Pasan*, which signifies a Goat; by the *Indians*, *Bezar* or *Bazar*, and *Lapis Forensis*, a Forinsick Stone, for *Bazar* signifies *Forum*; by the *Hebrews*, *Bel-zaar*, i. e. The Lord of Poyson, *Bel* signifying Lord, and *Zaar* Poyson, against which 'tis a present Remedy.

These Stones are of several Shapes, as round, oblong, and some like the Eggs of Ring-Doves, and Goats Kidneys, and others like Chestnuts; but they are all obtuse and blunt, none being sharp or pointed.

Nei-

Neither do they less differ in *Colour*, they are not of a light and lively red, sometimes inclining to a dark yellow, but for the most Part are *clouded* with green, not unlike putrify'd or rotten Apples; but chiefly (like *Civet-Cats*) they are of a dusky, obscure, and Ash colour Hue.

They consist of slender *Plates* and thin *Slivers*, like the Coats of Onions, most artificially infolded one within another, and Shining with a Lustre, as if they were polish'd; upon the Removal of the out-most, the next is brighter; and some of these *Films* are thicker than others, according to the bigness of the Stone.

These Stones are smooth and pleasant, and will admit of *shaving* easily like *Alabaster*; nay, if they lie long in the Water (according to some) will dissolve and melt. They have no Heart, but are hollow in the middle, and are full of Dust of the same Matter with themselves, which is much commended, and is preferr'd before the Stones.

And as they differ in *Figure* and *Colour*, so also in *Weight* and *Substance*: Some are lighter than others of the same Bigness (some weigh four, some twelve, and some fifteen Drains, and some more) and some more solid; some have fewer, and some more Skins and Films; some have Dust in their Middle, and others something like a dry Herb. In the Centre of some you may find a Straw, about which some fancy the Stone grew.

Some affirm it to be generated in the Corner of *Harts* Eyes; telling us, that in the *East* old Harts devoured Serpents, by which Sort of *Viands* they retrieve their Youth; and to overcome the Poyson, they plunge into the Water
all

all but their Head; where remaining a while, a clammy kind of Humour falls from their Eyes, which by the Heat of the Sun, hardens into Stones (like Walnuts) which drop on the Ground as they come out of the Water. This is the receiv'd and common Story.

But others inform us, that *Bezoars* are taken out of a certain kind of Animal, in Bigness and Swiftneſs reſembling an *Hart*; but in his Horns bending backward, and in the Shape of his Body almoſt like a *Goat*; and therefore 'tis call'd *Capra Montana*, a Mountain-Goat, tho it rather may be ſty'd *Cervi-Capra*. It hath ſhort Hair of an aſhy-yellow Colour. The *Bezoar* is generated in the Ventricle of this Beaſt, increaſing and growing about a ſlender Straw, and woven (as it were) of many Tunicles.

This Animal is found about *Ganges*, in the Mountains adjacent to *China*, and alſo in *Persia* in the Promontory of *Comoris*, and in ſome of the *Molucca's*, and ſometimes in *Peru*. A very late Traveller informs us, that *Bezoar* is found five Days Journey from *Golconda* towards the Eaſt in the Province of *Renquery*, and is ingender'd in the Paunches of a *Goat*, ſome of which have twelve Stones in them. The Inhabitants of the Country, eaſily know how many Stones the Goat hath lodg'd in his Body by this Means. They ſtroke the Belly of the Goat with their Hands, and rub it till the *Bezoars* come all to the Bottom of the Paunch, and then they may be felt, and counted like little Stones in a Bag. There come alſo *Bezoar-Stones* from the Kingdom of *Macassar*, in the Iſles of *Celebes* at five Degrees of Southern Latitude near the *Molucca's*,
but

but they are found in the Bodies of *Apes*, and are not so large as those of *Golconda*.

A Gentleman living about twenty-eight Years in these Countries, writes to his Friend, that he saw those Animals out of which comes the *Bezoar*, and saith, they are very like *Goats*, only they have no Horns; and are so swift, that they are forc'd to shoot them with Guns. He tells us, that he and some Friends on the 10th of *June* 1568. hunted some of these Creatures, and in five Days kill'd many of them; and that in one of the oldest of them, they made diligent Search for this Stone, but found it not, neither in the Ventricle, nor in any other Part of the Animal. They ask'd the *Indians* that attended upon them, where these Stones lay; they denied that they knew any Thing of them, being very envious, and unwilling to discover such a Secret. At length (he saith) a Boy about twelve Years old perceiving us to be very inquisitive, and to be very desirous of Satisfaction in that Particular, shew'd us a certain Receptacle and (as it were) a *Purse*, into which they receive their eaten Herbs, which afterwards when chew'd, they convey into the Ventricle.

'Tis strange that this Animal is not to be found throughout the whole *West-Indies*, but only in the Mountains of *Pernu*. This Person travell'd through all its Regions, and never saw any but in that Place. Those breed the best Stones that feed in the Mountains. They took nine Stones out of the *Pouch* of one Animal, which by the help of Nature, seem'd to be made of the Juice of those salutiferous Herbs, which were cramm'd up into this little *Pouch*.

As for the *Virtues of Bezoar-Stones*, Writers tell us, that the *Indians* use them against Medicines of a *deleterious* Quality; but the Inhabitants of *Ormuz* use them against Bites of savage Beasts, and also against all Melancholy Distempers. And because the Small-Pox is very fatal in *India*, they were wont to give daily to the Sick Patient, a Grain or two of the Dust of *Bezoar* with very good Success.

They tell us, that not only taken inwardly; but outwardly apply'd, it doth wonderfully resist, and is a very great Antidote against the Powers of Poyson; insomuch, that *Mathiolus* thinks it conquers all Poyson, if ty'd or bound to the left Side naked. It is manifest (they tell us) that its *Dust* or *Powder* applied to a Wound, will heal those that have been hurt by *mortiferous* Animals; it hath the same Virtue if laid on *Plague-Sores*; for it sucks out the Poyson: And its Powder also is very good for Wounds fester'd with poyson'd Arrows.

It doth not only revive, and is a refreshing Cordial to fainting Spirits, but is a very good Medicine to expel Worms; and is a Sovereign Antidote against that most fatal kind of Poyson, wherein the *Indians* dip their Arrows to destroy both themselves and the *Spaniards* too.

Many given over by the *Physicians*, have recover'd by the Help of this Stone, and this is confirm'd by many Instances; for a Dram of it pulveriz'd given to a Malefactor at *Prague*, immediately restor'd him. A Gentleman being sensible of his sinking into a *Swoon* without present Help, took five Grains of *Bezoar* in a little Wine, and was immediately reviv'd again into his former Vigour. At *Vienna*, the Emperor

commanded a *Bolus* of half a Dram of pulveriz'd *Arsenick* and *Conserve of Roses* to be given to a Malefactor condemn'd to die, who about an Hour after drinking ten Grains of *Bezoar* dissolved in Borage-Water, was presently restor'd to his former Health.

As for the *Value* of this Stone, none need wonder that it is so highly priz'd, since a certain Author tells us, that he had one, which though it weigh'd but five Drains, yet it was bought in *India* for above sixty *Hungarian Crowns*. They were in so great Esteem among the *Indians*, that they hung them in the Temples of their Idols, and offer'd Gold and Silver, Jewels and Animals, Boys, &c. and all precious Things imaginable to them. They sell them by Weight, and the Bigger the Stone, the better and the dearer. In the Year 1660 there were sold of them to the Value of 100000 *Franks*, and the greatest Part sell'd to the *English*.

The way to know the *Genuine* from the *Spurious*, is to crush them with your Hands, and to breath upon them; for if any Air remain, 'tis a Sign (they say) they are adulterate. Another Way is this; they draw a Needle and Thread through Poyson, and then thrust it into a Dog's (or any other Animal's) Foot, and leave the Thread in the Wound. The Dog presently perceives, and feels the Symptoms of Poyson, who seeming to be desperate, they put into his Mouth the Powder of *Bezoar* diluted with Water. If it doth the Dog any good, then they conclude it to be legitimate, and *Genuine*; and if not, it is supposed to be *false* and altogether *spurious*.

Others make this Mark or Criterion of its Goodness, viz. If when the first *Sliver* or *Tunicle* (let me say) is taken away, the subsequent *Film* is brighter, and hollow in the Middle, and is full of its own Dust, 'tis a Sign 'tis right; for those that are counterfeit, neither shine, nor have any Powder in them, but a little Grain or Seed, upon which the *Indians* did artificially make them. This is thought by some the most infallible Way of trying these Stones, viz. Take a little Quick-Lime in your Hand and mix it with Spittle, and rub it with this Stone, and it will become yellow.

C H A P. IV. Of Rhubarb and Cassia.

THE Use of *Rhubarb* in Medicines, was not known, nor the purgative *Cassia*; tho' I do not deny, but that they did exist. I shall say nothing of their *Virtues*, but shall leave them to Physicians.

The C O M M E N T A R Y.

Rhubarb is an excellent Medicament, and is very much esteem'd and used by Mankind. *Dioscorides* calls it sometimes *Rheon*, and sometimes *Rhian* and *Rhaponticum*; *Galen* calls it *Rheum* and *Rha*; *Pliny*, *Rhacoma*; *Celsus*, *Radicem Ponticam*; the *Carthaginians*, *Ravedsceni*: But the whole Tribe of Physicians, and all the Sons of *Æsculapius*, commonly call it *Rhenbarbarum*, *Rheobarbarum*, and *Rhabarbarum*.

Some say there is no *Indian Rhubarb*, but only that which comes from *China*, and grows in the internal Parts of the Country, in the City *Canton*, the most famous Mart and Haven of the Province, inhabited by the *Portuguese*. 'Tis imported from thence into *India* by Ships and Camels; through *Tartary* and *Uzbeque* into *Ormuz*, and from thence into *Persia*, *Arabia*, and *Alexandria*, and so communicated through the whole World. That which is brought by Beasts on Land is less corrupted, than that which is brought by Sea.

The *Rhubarb* of the ancient Greeks, viz. of *Dioscorides*, *Galen*, *Theophrastus* (whom *Pliny* follows) and of the ancient *Arabians*; namely, *Serapion*, *Avicen*, &c. much differs from that of modern *Arabians*, viz. of *Joh. Mesues*, and of the modern Greeks, i. e. of *Actuarius*, *Paulus*, *Nic. Mirepsus*, and others. And that 1. In Place, for the *Rhubarb* of the Ancients was brought from Northern Regions, where are the Rivers *Bosphorus* and *Rha*, which gave it its Name, as *Dioscorides* informs us, but the *Rhubarb* of the Moderns comes from the South. 2. In Colour; for the *Rhubarb* of the Ancients, was like black *Costum*, called *Herba Maria*, but that of the Moderns is not at all like it, but is rather yellow. 3. In Smell; for the *Rhubarb* of the Ancients, by the Description of *Pliny* and *Dioscorides*, had no Smell; and therefore was called by *Galen*, *Radix inodorata*, but that of the Moderns is very fragrant. 4. In Weight; for the old *Rhubarb* was light, but the new is heavy. 5. In Virtue; for that of the Ancients was not Purgative, but that of the Moderns is very loosening. *Dioscorides*, *Pliny*, and *Galen*, nor any

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any of the Ancients did use it for a Purgé, but rather ascrib'd to it an Astringent Quality. See more of the Nature of this Herb in Botanists, and among learned Physicians.

(r) [Cassia.]

Cassia, is the Fruit (about the Bigness of a Pear) of a Tree that hath Leaves like a Beech, but somewhat narrower, and more Verdant; very much resembling the Flowers of Broom, being of a dirty Colour, and smelling like Clove-Gilly-Flowers. After the Fall of these Leaves there shoot out long Husks or Cods, very green before they are ripe, but when come to Maturity they grow black, and are sometimes five, but seldom less than two Spans long.

Cassia doth not only grow in all the Provinces of *India*, but in *Egypt* also, from whence 'tis called *Siliqua Ægyptia*; and from its Shape and Figure, *Fistularis*; and from its Effect, *Solutiva*, Loosening. And because it grows in woody Places of its own Accord, without being sown, it is no Wonder there is so large an Increase of it, as to suffice all Europe; nay, the whole World too. Neither is it brought out only of the *East-Indies*, *Memphis* (or *Cairo*) and *Alexandria* in *Egypt*, but also out of *America*, from the Isles of *San Domingo* (and *S. John*), and is carried back again into the East from whence it first came.

There are two Sorts of *Cassia*. 1. *Arabian*, of which we now speak. And 2. That of the ancient *Greeks*. *Arabian Cassia* grows partly in *India*, and partly in *Egypt*, and differs from the other in its Description, Use, and Virtues.

1. In its *Description*. For it hath round Cods or Husks sharp at both Ends, whose inward Substance is black, of a sweet, luscious, and physical Taste; whereas that of the ancient *Greeks* is red, and smells like a Rose, and hath a sweet Taste, and is *Fistular*, having a *vinous*, aromatical Smell.
2. In its *Use*. For the *Arabian*, which is sold in Shops, is used *ad leniendam Aluum*, but the other is not, but is *Diuretical*, and hath other Vertues different from the former. And therefore that *Cassia* the *Arabians* write of, was altogether unknown to the ancient *Greeks*; neither doth *Galen* or *Dioscorides* make mention of it; so that, if in the Books of the *Greeks*, you read of this *Fistular-Cassia*, it is not to be understood of that which the *Arabians* and Moderns treat of, which is loosening (*Solutiva*) but of *Cassia lignea & Odorata*, i. e. Woody and Odorous.
3. In *Virtues*. Of which you may consult many Learned Physicians, and particularly, that dapper *Quack-Salver*, honest *Nich. Culpeper*.

C H A P. V.

Of Sugar.

THESE was formerly *Sugar* among the ancients, but it was not much known; neither was it used, but only in the Composition of Medicines. The Manner of making it, was

was found out some hundreds of Years ago; And in this our Age, there was one at *Venice*; who invented the Art of Refining it, who got by the Invention above an hundred thousand Crowns; all which Wealth he left to his Son, who for all his Knighthood, soon squander'd it away, and made it fly with those Wings, which *Solomon* gives to Riches.

That Art now is arriv'd to such Perfection and Curiosity, that Rhubarb, Pine-Nuts, Cinamon, and many other Things are candied with Sugar, and are preserv'd fresh and good.

(t) There are made of Sugar several Sorts of Figures, and pretty Images and Pictures; and also all Sorts of Fruits are represented so lively, that they seem to be natural, which Thing could not be done formerly by the Ancients, by reason (I suppose) of the Scarcity of Sugar.

The C O M M E N T A R Y.

(s) [*There was formerly Sugar*]

'Tis a Question, Whether the Sugar we use now a-days, was known to the Ancients. *Quercetan* tells us, that he cannot gather from the Writings of *Hippocrates* and *Galen*, that they had any Knowledge of it.

We must distinguish of Sugar: There is that of the Ancients, and that of the Moderns; the former was a kind of *Honey*, and therefore the Ancients speak of it amongst *Honey*: For *Dioscorides*, *Galen*, and *Pliny* do all unanimously agree, that this kind of Sugar is a sort of *Honey* condensed, whose Canes are to be found in *India* and *Arabia Felix*.

Seneca tells us, that among the *Indians*, there was Honey to be found on the Leaves of Reeds; and that that melleous kind of Dew, harden'd and congeal'd (like Salt) on Canes or Reeds, call'd by *Archigenes* (an ancient Writer) *Mel Arundinum*, and frozen to the Reeds by the cold of the Night, hath the Resemblance of a sort of Honey, and was styl'd by *Paulus Aegineta*, *Salt Indus*, because when condensed it appears like Salt.

Alexander Aphrodisiens saith, that that which the *Indians* call *Saccharum*, is a *Coagulum* of Honey. *Archigenes* and *Paulus Aegineta*, shew that the first sort of Sugar among the Ancients, differs nothing from the *Indian* Salt, and they call it by that Name, and also *Reedy Honey*.

A Second sort of Sugar among the Ancients, and known to Primitive Writers, was that which was squeez'd from certain *Reeds*, or from their Roots, which they us'd as Honey in their Diet; and therefore it was call'd by some *Moors*, *Mel canna*, and was brought chiefly out of *Egypt* and *India*.

And that this was known to the Ancients, is clear from *Lucan*, who in his 3d Book makes mention of it.

Quique bibunt tenerâ dulces ab arundine Succos.

" And quaff'd sweet Juice from tender Reed.

And also from *Statius*

Et quas precoquit Ebofia Cannas,

" Canes which *Ebofia* boil'd.

And

And *Strabo* tells us, that those kind of Reeds, were not only crush'd, but boil'd. And *Galen* mentions those *Egyptian* Reeds, out of which was squeez'd a melleous kind of Liquor.

As for our *modern Sugar*, it is a Juice squeez'd from a well-bruised Plant more or less excocted and purify'd by the Heat of the Fire: The more it is boil'd the finer and whiter it is, and according to its several Boilings, 'tis endowed with several Degrees of Goodness. They first boil this Vegetable, that is so like a Reed, so that the yellow Part is sever'd from it, and then it becomes Sugar. And this they boil again, and then it grows whiter. They boil it a third Time, and then it arrives to a greater Whiteness and Hardness too: Nay, they are wont to boil it till it be transparent like *Scissile Alumen*, and this they call *Candidum*, and barbarously *Candum* and *Taberzeth*. *Sugar-Candy* is a facitious or artificial Thing made of Sugar boil'd four or five Times over.

Our Sugar differs from that of the Ancients: 1. In *Matter*, for theirs was made of Honey and Dew, but ours of the Juice of a Cane. 2. In *Form*; for theirs (as to its Consistence and Concretion) was fragil and brittle like Salt; and *Pliny* saith, was white like Gum: But ours, before 'tis boil'd, is rather of a dusky, yellowish Colour than white; neither can it be broken by the Teeth, but melts in ones Mouth. 3. In the *Efficient*; for theirs was condensed by the nocturnal Cold, and was afterward hardened by the Heat of the Sun: But the Efficient Cause of ours is the Vegetable it self, and the Heat of the Fire boiling and purifying it. 4. In *Place*; theirs grew only in *India* and *Arabia Felix*, on the Leaves of Reeds, and on Reeds themselves:

But ours is to be had in the *Sicilian* and *Canary* Islands, where the *pulpos* Substance, or Pith of a Plant like a Reed contains Sugar. 5. In Use; They us'd Sugar only in Physick, but we in Banquets also; so that there can hardly be a Treatment sweet and splendid without this Delicacy. 6. In *Virtue*; The Sugar of the Ancients was disobliging to the Belly, but endearing to the Stomach: But ours on the contrary, is more friendly to the Latter than 'tis to the Former.

There was another kind of Sugar among the Ancients, which was press'd from Canes or Reeds. And indeed, ours doth not differ any way from it, in regard it is the Juice of the fore-mentioned Vegetables. However they differ in some respect, in that Antiquity squeez'd it from Canes, (though sometimes, as we shew'd you from *Strabo* and *Statius*, they extracted it by boiling;) whereas ours is made thus: The Sugar Canes being beaten and smash'd small, are boil'd till the whole Liquor is condensed into Sugar sticking like Salt to the Sides of the Vessel, hard and white.

From whence it is manifest, that our Fore-fathers were not ignorant of this Way of Boiling it, but would not use it, because that Juice made a pleasant sort of Drink. And it seems, they had rather have a Cup of good Liquor, Nappy and Potent, to make them *Merry*, than a *Consistence* of Salt to make them *Dry*.

As for the Virtues and use of Sugar, there are but few that are ignorant of them. It conquers the Austerity and rebates the Edge of harsh and sharp Things. It mollifies the Acrimony, and makes meek the Crabbedness of tart and
sour

four Things. It sweetens Brinith, and gives taste and relish to insipid Things. In a Word, it seems to tame and to triumph over all *Sapids*.

(1) [*Made of Sugar several Sorts of Figures.*]

How many Shapes and Images of Fruits and Plants, of Beasts and Birds, are to be seen in the Shops of ingenious *Confectioners*! How many Seeds lie buried and entomb'd in the Crust of them, and all to gratify and please the *Palate*, and to advance the Pleasure of Mankind!

C H A P. VI.

Of Manna.

(u) *M A N N A* was not unknown to *Virgil*, who calls it *Roscidum Mel*, Honey-Dew, nor to *Pliny*, *Galen*, and others: But in my Opinion, they were ignorant of its Virtues, and therefore did not use it in their Medicines. And I suppose *Averroes* and other *Arabians* would have it so, who wrote that it was altogether unknown before their Time. It is not only delicious of it self, but it sweetens the Bitterness and chastens the Severity of other Medicines.

There are other *Simples* now a-days in Use, which were not at all known to the Ancients, but they are such as are not very considerable; I shall therefore omit them, and proceed to treat of some certain Arts, and first of *Chymistry*.

The C O M M E N T A R Y.

(u) [*Manna.*]

We must distinguish of *Manna*, there is that of the ancient *Greeks*, and that of the *Arabians*.
1. The

I. The *Greeks* understood by *Manna*, nothing but the Powder or Dust of pounded *Frankincense*, mingled with a little Bark of the same, *i. e.* some small Particles rubb'd off by Motion from the little *Molecule* or Clods of *Frankincense* blended with the Fragments of its Rind, and therein it differs from the meer Dust or Powder of the same.

II. The *Manna* of the *Arabians*, is a Substance deriving its Original from Dew, made into little white Grains of a Solid Consistence, and of a pleasant Taste; sometimes falling on the Leaves of Trees, and sometimes on the Ground; of this we shall consider the Name and Form, the Colour and Birth Place, the Merchandise and Traffick, the Duration and Age, the Time and Manner of its Generation, and the several kinds of it, and some Inquiry about it.

1. As for the Name of *Manna*, 'tis a *Chaldee* Word, an Interjection of Admiration deriv'd from the *Hebrew* *Manhu*, *Quid est hoc?* What is this? The *Arabians* in their own Dialect, call it *Terenabin* and *Terminabin*. Some call it *Aerial* Honey, and a melleous Humour, *Mel & Manna Roris*, Honey or Manna-Dew, to distinguish it from *Manna Thuris*. Others style it *Mel sylvestre*, and 'tis frequently mentioned in *Pliny* and *Galen*, in *Theophrastus* and others by the Name of *Rorid* Honey.

2. As for its Form, the Consistence of it is a concreted Juice, which being condensed from its Fluidity into a solid Firmness, is shaped according to the Figure of its circumambient Body; So that its Figure is uncertain, though it usually imitates two Forms. For Juices are mostly concreted either into *Globules* or *Icicles*.
 Into

into little Globules, when the Drops are too thin to be diffus'd, for then Nature restrains and confines a fluid Body into narrow, and those Sphærical Bounds: But when the fluid Juice is more copious, then it is congealed into *Iticles*.

3. Touching its Hue, 'tis generally of a snowy, and sometimes of a yellowish and Honey Colour, and hath a sweetish Taste, not unlike that of Sugar. If you sprinkle a coarser Sort of Sugar on pure and Virgin-Oil, and mix them with Flower of *Sweet-Almonds*, you will make a Composition that tastes like *Manna*.

4. As for the *Birth-Place* of *Manna*, 'tis gather'd in *most*, if not in *all* Parts of the World.

1. In *Europe*, *Valesius* tells us, that it rain'd *Manna* in *Spain*. It is to be had in several Parts of *France*, as in the County of *Burgundy*, &c. and in the Low-Countries, as several Authors inform us. And as *Italy* excels many Countries of *Europe* in other Things; so principally in this, there is a wonderful Increase and Plenty of it in *Calabria*, neither are other Places destitute of it. In the Year 1622. there fell such a Quantity of it at *Pavia*, on the Grove near the Monastery of the *Holy-Cross*, that the Fathers of the Society were forced to cut it down to be freed from the flies, which were a very great Nuisance and offensive to them. Those liquorish Creatures did so swarm to those Dainties, that they corrupted the Air, and made it stink as much as the *Manna* was sweet. 2. 'Tis gather'd also in *Asia*, in very great Quantities among the *Persians*, and also in *Africa*.

5. The *Merchandise* of *Manna* is much exercised in the Marts of *Venice* and *Genoa*, whither 'tis brought in great Plenty from *Apulia*. *Oriental*

tal Manna is sold at *Alexandria* in *Egypt*, and at *Aleppo*. The *Asiatick*, at *Ormuz*, *Aden*, *Malaca*, all famous *Indian Ports*. The *African* is transported toward the Middle of *Lybia*, and there is no small Quantity of it at *Algiers*.

6. The Time of gathering it is in the *Twilight*, from the Rising of the *Pleiades* (in the Beginning of *April*) to their setting in *November*. There's no Hopes of getting it after they are set. It falls in the Morning before Day-light, and is condens'd by the Cold, and harden'd by the Sun, which is peculiar to the *Calabrian* and *Persian Manna*; for the longer it *Tipples* and *Drinks* in the Sun-beams the harder it grows; whereas other Kinds, unless gather'd in the Morning, cannot endure the Embraces of that warmer Planet.

7. There are several Sorts of Manna. 1. *Oriental*; And 2. *European*.

1. *Oriental* is that which is brought from the Eastern Parts, and is either liquid or dry. 1. The *Liquid* is called in *Arabick Tereniabin*, and is usually preserv'd in Earthen Vessels. 'Tis call'd by some (and that not improperly) *Mel Aereum*, *Mel Cedrinum*, *Mel Roscidum*, *Ros Libani*, *Ros Mellens*, i. e. *Aereal*, *Rorid Honey*, an *Honey-Dew*, and the Dew of *Libanus*. Some of this hath been seen to have been brought from the Mart of *Ormuz* to *Goa* in Bottles, and was not much unlike white refin'd Honey. There is a second Sort of this liquid *Manna* of an Honey-like Taste, which the *Persians* call *Lac Arborum*, the Milk of Trees, from whence it distils and falls like Dew. There is a third sort mention'd by *Q. Curtius* in his 6th Book, *Near the Caspian Sea*, saith he, there was great Store of a
sort,

sort of Trees like Oaks, whose Leaves were covered with Honey, which the Inhabitants gather before Sun-Rising, lest the Moisture should be dried up by the Heat of the Sun. This liquid Manna, because of no great Value, is not any where now a-days preserv'd. 2. Arid or dry and hard Manna, is kept in wooden or glass Chests, or Repositories; of this there are seven Sorts, (1.) Of Mount *Libanus*, whose Operation is so small, that the Inhabitants eat it instead of Food. (2.) *Masticinum*, from a Grain of Mastick, which it doth not a little resemble. 'Tis call'd by some *Viscid* from its Clamminess, and by others *Manna Granata*, from its Figure and Manner of Concretion. This *Mastick Manna* is thought to be the best. (3.) *Bombycinum*, which is cheaper and of a bigger Grain, and is like a lock of Silk, (from whence its Name) and is nothing else but the Carcass of decay'd *Mastick-Manna*, adulterated with Sugar and other Sophistications. (4.) *Teremiabin* in *Arabick*, which is shaken from Thistles, and consists of Grains about the bigness of Coriander-Seed. The 5th Kind is brought on Boards by the *Persian* Merchants from the City *Bozora*, mixt with Leaves, it differs not much from *Calabrian*. The 6th Sort tastes like Sugar and pure Oil, and comes from the Kingdom *Zifara* in *Africa*, The 7th Kind comes from *Ayadex*.

2. *European Manna*, is *Gallican*, and *Calabrian*, which is the most ignoble, and less virtuous, by reason of the Faintness of the Sun-beams. And this is, 1. *Foliaceous*, which sticks to the Leaves of Trees, and is pellucid and heavy, white and sweet, and luscious to the Taste, consisting of little Grains. 2. *Truncous*, which flows from

Trees when cut down. 3. *Terreous* or *Lapideous*, which is gather'd from the Stones or Earth, and drops from the Leaves or Branches of Trees. This hath thicker and groffer Grains, and is not of so pure and sincere a Colour, and therefore not so good as the former.

As for the *Duration* or *Age* of Manna, that which is oriental, dry and hard, is more *efficacious* than *Calabrian*, but keeps not its Virtue above a Year. In *Syria* and *Cairo*, tho' *Mastick* Manna hardly lasts a Twelvemonth there in its native Place, yet with us, if expos'd to the Air, it decays in a Month, and degenerates into *Bombycinum*. *Apulian* therefore is fitter for use, which retains its Virtue, not only one, but five Years, and then grows weak, and loseth its Strength.

In the Choice of *Manna*, we must have regard to its *Age*, the Place of its Nativity, and to the Tree from whence it falls; for it gets somewhat from that upon which it drops, and acquires Virtue by Contact; that therefore is the best which is found on Trees, because it gathers nothing from them.

That which is found on the Trunks of Trees, is not so good as that which resides on the Leaves, though it far exceeds that which is taken from Stones or the Earth, and that which drops on *Stones*, is better than that which falls on the Earth, because this is more easily corrupted; and therefore sometimes they lay pure *Wooll* under the Trees from whence it distils. That is the best which is fresh and shining, whitish, and condens'd into the purest Clods, and of Honey-like Sweetness, gather'd from odoriferous and wholesome Shrubs, not mix'd or

entangled with Leaves or Twigs. That is *naught* which is of an ashy Colour, but that worst of all, which is blackish, dirty and old.

There are several Opinions about the Generation of Manna : The first is of *Galen*, (which many favour) who holds a Vapour arising from the Earth and Water, to be the *material* Cause of it, and the Sun to be its *efficient*. They much reverence this Sentiment, who insist only on the *general* Principles of Philosophy, and descend not to Particulars.

The second is of *Pliny*, who tells us in a Rhetorical or Poetical Strain, that Manna is aerial Honey, and the *Sweat* of Heaven, the *Spittle* of the Stars, and the *Juice* of the purify'd Air.

The third is of one *Christopher à Vega*, who would have it be generated from a certain kind of Fly. The third is *Anthony ab Altomaro*, who will not have it a *Meteor*, but a *Gum*, a resinous kind of Substance issuing from Ash-Trees. The last Opinion would have it a kind of Salt, arising in Streams from its own proper Mine, and falls down upon Trees that grow near that Place.

You may find all these Opinions largely confuted by *Magnenus*, in his little Tractate of Manna, who afterwards lays down his own, which is, that the proximate, immediate material Cause of Manna, doth chiefly consist of five Ingredients, *viz.* *Primogenial*, or Virgin-Wax and Honey, a *Rorid Vapour*, *Sal Nitre*, and *Sal Ammoniack*. This Position he excellently explains in the above-mentioned Treatise, to which we refer the curious Reader.

That the Manna of the *Israelites* was the same with ours, *Valesius* affirms in his Book
of

of *Sacred Philosophy*. But there are many Arguments persuading the contrary in *Magnenus*:

(w) [*Manna was known to Pliny, Galen, &c.*]

Whether the *Arabian Manna* was known to the ancient *Greeks* or not, is much controverted. Some say not, because the Name is not so much as mentioned among them, and because they never ascrib'd this purging Faculty to any thing like it; and others write that there are many Medicaments among Physicians, of which there is no Testimony of *Galen* extant, among which they reckon *Tereniabin*, which is interpreted Manna.

But a third sort there is of a contrary Opinion, who affirm it was known to the *Greeks*, but not under the Name of *Manna*, but of *aerial* or *rorid Honey*. And of this (they say) *Galen* makes mention in his third Book *de Alimentis*, where he saith it was found so plentiful in *Asia* in his Time upon Leaves of Trees, that the Inhabitants cry'd that *Jove* rain'd Honey, from whence it was call'd *ἀερίων* and *δερρόμων*, i. e. aerial and rorid Honey. Besides, a long time before *Galen*, one *Amyntas*, a Greek Author, in his Book *de Asia Ponderibus*, exactly describes Manna, under the Name of Aerial Honey, as *Langius* informs us in his sixty fourth Epistle.

(x) [*But were ignorant of its Virtues, &c.*]

Some of the Ancients did know Manna, as to its Generation and Substance, but not its Qualities and Use in Physick. *Hippocrates* of Ulcers, *Galen*, *de Alimentis*; *Pliny* and *Curtius* make mention of it under the Name of Honey, but its Use and Properties were first explain'd by *Arabians*; as *Mesues* and *Serapion*, *Hibix* and *terroes*, *Avicen* and others.

CHAP.

C H A P. — VII.

Of *Alchymy* or *Chymistry*.

(1) *Alchimy* signifies Infusion, the Greek Word *Chymia* denoting as much, and *Al* is an *Arabian* Particle ; as *Al-Coranus* is as much as *hic Coranus*, and *Al megistus Ptolomeus*, is as much as *hic Megistus Ptolomeus*, i.e. This greatest *Ptolomy*.

'Tis a great Question when *Chymistry* was invented, for neither *Pliny* (otherwise a diligent Author) (y) nor any other, either Greek or Latin Writer, makes mention of it (z). For my part, I think it to be very ancient, but laid aside and discontinu'd for some time afterward. *Suidas* tells us that that Art was in being till the time of the *Argonauts*, when *Jason* went to steal the Golden Fleece, which was nothing else but a Book, that taught how to make Gold of other Metals ; for they conceal'd its Name under that of the Golden Fleece, so turning the Matter into a Fable.

The *Egyptians* diligently exercised this Art in the Time of *Dioclesian*, who hating them for raising a Tumult, burnt all their Writings about melting of Gold and Silver, lest being enrich'd by this Art, they should rebel against him, as the same *Suidas* informs us. *Dioclesian* was created Emperor in the Year 287, so that that Art may be said rather to be *reviv'd*, than to be first *invented*.

(a) Nevertheless there are many Things in this our Age most ingeniously found out, which were

were utterly unknown in former Times, among which we may reckon,

N. B. By *Æs*, I think is meant Copper, by *Lato*, or *Æs Coronarium*, Brass; which is made of Copper, and the Dust of *Lapis Calaminaris*.

1. *Lato*, or *Æs Coronarium*, (gilt Brass) Brass brighten'd with a certain Powder, which gives it the Lustre of a Metal which really it is not; because if a Spoon of this gilt Brass be thrown into it, it becomes pure Brass again as it was before, as soon as the Powder is consum'd, and loseth its acquired and artificial Splendor.

2. Chymists have found out a way also to whiten Sapphires, so that they shall seem to be Diamonds, and are wont to be set so artificially into Rings, that no Man whatever (though never so skilful) can discern them to be Sapphires. I saw an Experiment of this made by some Venetian Jewellers, by the Order of that Duke, when he was *Prætor* at *Padua*. There was a great Dispute, and a Wager laid, whether the Stone in such a Ring was a *Sapphire* or a *Diamond*. 'Twas concluded to be the latter, and expert Artists confess'd that that *Sapphire* could not be distinguish'd from a *Diamond*.

3. Chymists also produce a certain kind of Tin, which you would take to be Silver, which retains its Firmness, in spite of the Strokes of the heaviest Mallet, but not in that Vessel call'd *Lacopella*, or *Cupella*. They have besides many other Inventions; as,

4. *Aque fortes*, whereby they separate Brass from Gold and Silver: A thing which formerly could not be done, according to *Ulpian*, (*Lib. 5. §. 3. ff. de Rei vindicatione*) who saith, that if Brass be mingled with Gold, it can never be sever'd

sever'd from it again. These *Aqua Fortes* do wonderfully affect the Sight in the Separation of Gold and Silver; for the latter seems (as it were) to ascend like a Pillar, and is chang'd into a green, rosy, and other Colours, and is so dispers'd through the Water, that nothing of it appears more, but all is full of that Element, the Gold in the mean time sinking to the bottom.

5. *Lacopella*, or *Cupella*, is likewise a fresh and modern Invention, which is a wonderful *Vessel*, made of an Ox's Bone, wherein Gold and Silver were polish'd and refin'd from all manner of Dross, so that nothing shall remain but pure Gold. Those Metals being wrapt up into a thin Leaf of Lead, were cast into that Vessel, and set over the Fire; and then the *Cupella* sucking up whatever Metal there is in it besides, leaves the Gold and Silver entire and untouch'd, which lies at the bottom pure and sincere, without any Mixture, and this they call *Aurum di Copella*.

It is doubted whether Chymistry be *lawful* or not; and truly all the Interpreters both of Civil and Common-Law, are unanimously for the *affirmative*; though at first look there may seem to be some Colour of Reason to conclude for the *negative*; in regard it is the only Prerogative of the Creator, to change one Substance into another; a Thing which no Man (though never so famous) can effect. And therefore Satan tempting our Saviour, and making him (as it were) almost ready to doubt whether he was the Son of God or not, saith unto him, *If thou beest, &c. command these Stones to be made Bread,*
i. e.

i. e. Do that which the Almighty alone can effect.

But however, notwithstanding all this, it is concluded and agreed that *Chymistry* is *lawful*, and that upon this Ground, because all Metals proceed from Sulphur and Quick-silver (call'd *Mercury* by Chymists) which if they have Air, Water and Sun in them, in due and right Proportion, are converted into Gold; but if they are defective in their *Temperament*, and cannot be reduc'd to that exact Perfection, then Silver, Tin or Lead is produced according to the Influence and Disposition of the Elements:

The Art of Man cannot *transmute* one Substance into another, only Heat and a due Temperament can do this, which have the Virtue and Faculty of changing Quick-silver and Sulphur into Gold. But now if this cannot be done, by reason of some Defect, then the *Chymists* do supply by Art the Want of that Heat and Temperament, which if they had been natural, would have turn'd the Sulphur into the Substance of Gold, which is that which *Chymists* do, who supply the Defects of *Nature* by the Assistance of *Art*.

One *Johannes Andraas*, a famous Interpreter of the *Pontifical* Laws, tells us, that one *Arnoldus de Villa Nova* did in the Consistory of *Rome*, in the Presence of many Cardinals, turn Brass into Gold, and suffer'd it, at his Departure, to undergo the Tryal and Examination of a *Touch-stone*,

(b) The Art may be true, but I believe scarce any Man, or very few, did ever attain to it, or understood it; for those that profess it, are either very *Simpletons*, or very *Beggars*, it being
grown

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grown into a (c) Proverb [*Who ever knew a rich Chymist?*]

The COMMENTARY.

(γ) [*Alchymy.*]

It appears from some Authors, that these Words, *Alchymia*, *Chymia*, *Chemia* and *Chimia*, are very ancient, and that they have been in use among the *Egyptians* and *Arabians*. 'Tis said in the Text, that (*Al*) is an *Arabian* Particle. *Cælius Rhodoginus* calls it *Archymia*, quasi *Ἀργύρου χυμιαίαν*, the *Fusion* or melting of *Silver*. Some Moderns give this Account of its Etymology, and tell us 'tis deriv'd ἀπὸ τοῦ ἀλῶς καὶ χέειν, i. e. *Fundere salem*. But we must not imagine that the Word came from the *Greeks*, though the Greek Tongue was known in *Egypt*, and though there were many Mines of Metal in that Country; for why should they call that Art, which came not from *Greece*, by a *Greek*, rather than by a *Domestick* Name? So we may say *Chymia* is deriv'd, ἀπὸ τοῦ χυμῦ, ab *Humore & Sapore*; and the like, any way to express its Notion, but not that it comes from that Word as its *Original*; for it will appear hereafter, that this Art was refin'd and polish'd, not by the *Greeks* and *Latins*, but by the *Egyptians*.

The Moderns (whose Chief perhaps is *Paracelsus*) call it *Ars Spagyrica*, the *Spagyric* Art, ἀπὸ τοῦ Σπᾶν καὶ ἀργυρεῖον, i. e. to separate and congregate, because by it is extracted a subtile and spirituous kind of Substance, wherein the Efficacy of Medicaments consists, or else they call it *Magirica*, or *Extractor*.

Some call it *Ars Distillatoria*, the Art of *Distilling* from artificial Distillations, which yet *Pancirollus*

cirollus makes to differ from Chymistry, yet so as one may seem to be deriv'd from the other; and he that is conversant in the *former* (especially of Metals) may be thought almost by all to be exercised in the latter. Our Author doth not so much distinguish them by their *Subject*, as by their Scope and *End*; for he makes Distillation to be a Preparation of a Medicine for a Physical Use, but Chymistry to be the Transmutation and *Perfection* of Metals.

(g.) [*No Greek or Latin Author mentions it.*]

Those that are very well vers'd in both, tell us, that the very Name of Chymistry; *i. e.* *Chymia*, occurs not there, much less the Thing itself. What is quoted out of *Aristotle*, makes but little for Transmutation; but some say, that somewhat of that Nature may be understood from *Hippocrates* and *Plato*, *Hesiod* and *Hermes*.

(z.) [*For my part, I think it to be very ancient, &c.*]

We have in holy Writ *Tubal-Cain*, instructing every Artificer in Brass and Iron, whence some conceive him to be the first Workman in some part of that Art, which is call'd *Metal-lurgick* (*à μέταλλον & ἔργον*) as if any thing more could be inferr'd from thence, than that he was only so far conversant in Metals, as they are necessary to *Agriculture*, or Husbandry.

The Art of converting Metals into Gold and Silver; is ascrib'd to *Hermes Trismegistus*, an *Egyptian*, whom some make to be coæval with *Moses*. But now *Moses* was born in the Year of the World 2373, that is before Christ 1598 Years; and *Dioclesian* the Emperor reign'd about 284 Years after Christ; and therefore this Art was in *Egypt* above 1800 Years before *Dioclesian* burnt all the Chymical Books.

In regard *Moses* was skill'd in all the Wisdom of the *Egyptians* (*Act.* 7. 22.) and was mighty in Words and Deeds, some are ready to conclude that he was not ignorant of this Art, especially if it be true what is affirm'd by some, that the *Tabula Smaragdina* of *Hermes*, wherein this Art is express'd, was taken (as all Chymists do averr) from *Moses* his History of the Creation. Now if these Things are true, who will not affirm with *Pancirollus*, that this Art is very ancient? But it may not be impertinent to set down here the Table it self.

“ True without a Lye; certain and most
 “ true. That which is below, is as that
 “ which is above; and that which is above,
 “ is as that which is below, to do the Mira-
 “ racles of one thing. And as all Things
 “ were from one, by and through the Me-
 “ diation of one; so all Things were from
 “ this one Thing by Adoption. The Sun is
 “ its Father, and the Moon its Mother, and
 “ the Wind carry'd it in its Womb. The
 “ Earth is its Nurse. Its Power, Force and
 “ Efficacy is perfect and entire, if it be con-
 “ verted into Earth. Separate Earth from
 “ Fire, the thin from the thick, and that
 “ sweetly with much Ingenuity. It ascends
 “ from Earth to Heaven, and descends to the
 “ Earth again, and receives the Energy both
 “ of Superiors and Inferiors.

“ And thus thou shalt obtain the Glory of
 “ the whole World, and therefore all Ob-
 “ scurity shall flee from thee. This is the
 “ strong Fortitude of all Fortitude, because
 “ it conquers every subtil and thin thing,
 “ and will penetrate every solid. So the
 [Vol. 2.] P “ World

" World was created. From hence will arise
 " strange Adaptations, whose Manner is this.
 " Therefore I am call'd *Hermes Trismegistus*,
 " having three Parts of the Philosophy of the
 " World. 'Tis compleat what I said of the
 " Operation of the Sun.

So far the Table, which all Commentators
 expound in an *Allegorical* Sense concerning the
Transmutation of Metals; for he all along speaks
 of an universal Medicine, or *Catholicon*, to be
 prepared out of Vegetables, Minerals and Ani-
 mals, and to be apply'd both to Soul and Body;
 so that the whole Drift and Design of the *Her-
 metical* Doctrine, is to make a certain genera
 Medicine to cure all Diseases incident to Man-
 kind.

This Art was deliver'd down by *Hermes*, not
 to the *Greeks* or *Latins*, but to the *Arabians*;
 some say that *Trismegistus* wrote of Chymistry
 about the Time of *Moses*, but so obscurely, that
 his *Contemporaries* could not, and therefore much
 less the *Latins*, understand him. After him suc-
 ceeded *Zoroaster*, and then *Solomon*, and then the
Arabians, among whom, no body, before *Geber*,
 improv'd it. And lastly *Paracelsus*, and other
 famous Chymists added Perspicuity of Language
 and Method to it.

Some think the *Egyptians* conceal'd this Art,
 and therefore 'tis no wonder it arriv'd so slowly
 to the *Greeks* and *Arabians*, though many emi-
 nent Philosophers, as *Democritus* and *Pythagoras*,
Plato and others, went into *Egypt*, to learn the
 Secrets of Magick, to which *Physiology* is so near-
 ly related; for 'tis certain that that Nation did
 much improve it by that their famous Art,
 which

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which consisted in the Knowledge of Sympathies and Antipathies in natural Things.

(a) [*There are many ingenious Things found out in this our Age, &c.*]

Our Author confines not Chymistry to *Metals* and *Metallicks*, as may be gather'd from these Inventions both Ancient and Modern, which he refers to this Art; as *Chryso-poeticks*, or making of Gold, *Lato*, or Gilt-Brass, whitening of Sapphires, and Preparation of Tin, *Aqua Fortes*, and *Probatio per Cupellam*. But besides these, there are many more, if not Old, yet New and Modern; you may see them in *Libavius* his Alchymy, and in *Bapt. Porta* his Natural Magick.

There are some Things so much discover'd and made common by your *Virtuosos*, that they deserve no longer to be styl'd Arts. There are others, which are not as yet *invented*; and there is a third sort which are found out, but known to a very few, or scarce to any at all through so many Ages; among which there is one chief and principal (the only End and Scope of the whole Art of Chymistry) and that so wonderfully conceal'd in a deep Silence, that it deserves to be dubb'd a great *Arcanum*.

1. First, As for those Things that are so much discover'd, they are *Chymical Inventions*, of which we shall mention only the chief, which are partly about, 1. *Metals*, and 2. partly about *Metallicks*.

1. Those about Metals are, 1. The *blending* them together, so as somewhat shall result and arise from the Mixture; Examples of this are common enough. 2. The *transmuting* or changing the one into another, as is frequently done in Iron and Brass. 3. The

increasing and diminishing their Heaviness or Weight. 4. The rendring them more firm, compact and solid. And 5. The softning of some, and the hardning of others. All which may be done without any Cheat.

2. Those about *Metallicks* are more subtil and curious; as 1. *Gildings*, and 2. *Silverings*, and 3. Various *Separations*, whereby are discover'd the wonderful Efficacy and Virtues, the Sympathies and Antipathies of severall Metallicks, as Antimony and Quick-

* A kind of Mineral, found like Sand in Veins of Brass, Silver or Gold. One kind of it is called Borax, or Green Earth, which the Goldsmiths solder with.

silver, black and white Lead, Sulphur and * *Chrysocola*: To which we may add the Inventions of Gunpowder and Wire-drawing, and making Glasse malleable. We omit the Medicinal and Remedial, as Distillations and Fumigations,

Suffius and Fusions; all which are very ingenious, and are arrived now to a very great Exactness.

3. There are other Things, which are not as yet found out, as 1. *Softning* of Glasse without Fire. 2. The Composition of *Electrum*. 3. *Working* curiously on the hardest Stone. 4. *Excoction* of the thinnest Waters.

4. There is another sort of Thing that is found, but known only to a very few. As

1. The making of Glasse as hard as Diamonds, and 2. The making Metals and Metallicks both a present and sovereign Remedy for desperate Diseases. 3. The making an *Antidote* most exquisite and certain against all manner of Poison. And 4. and lastly (the Crown of all the rest)

the

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the finding out a way of extracting such pure and subtil Spirits, as will improve Metals to the highest Perfection, and that without a fallacious or counterfeit Metamorphosis.

(b) [*The Art may be true, but I believe scarce any Man, &c.*]

'Tis clear from the Premisses, that this Art is Old enough, but whether 'tis as true as 'tis ancient, i. e. whether it can perform those Things which it promiseth, is the Question in hand. There cannot be urg'd more cogent Arguments to evince the Truth, than those mentioned by *Pancirollus*, which are taken from Sense and Reason; for 'tis undoubtedly manifest by the Testimony of the former, that Gold (about which is the great Dispute) hath been made, and by that Art which *Artists* know, and which *Cheats* and *Impostors* do only profess. And this may be prov'd by many Examples besides that (which our Author mentions) of *Job. Andraas*. He that is desirous of more, may fetch them from several Artists, as *Geber*, and *Hermes*, and many others.

Corn. Agrippa in his first Book, and fourteenth Chapter of Occult Philosophy, tells us, that by the *Spirit*, or rather *Form*, or purer Part of Gold, imperfect Metals and Mercury may be converted into Silver, and that he saw it done, and knows it to be done. Chymical Books are full of Instances of this Nature. *Cardan* saith in his sixth Book of Subtilties, that Quick-silver was turned into Gold before the Duke and Senate of *Venice*, by an Apothecary of *Tarviso*.

Besides, why should so many famous Men of several Nations write so many Volumes, and those excellent Books of this Art? Did they

seek for Applause and Glory from Posterity in Toys and Trifles? *Egyptians* and *Arabians*, *Chaldeans* and *Germans*, *Spaniards* and *English*, &c. have all treated on this Argument. Who can number the Authors that have handled this Subject? We shall mention some, and those the most choice ones, in an alphabetical Order.

- | | |
|----------------------------------|--------------------------------|
| 1. <i>Arnoldus Villa-Novan.</i> | 15. <i>Lullius.</i> |
| 2. <i>Agatho-Damon.</i> | 16. <i>Merlin.</i> |
| 3. <i>Apuleius.</i> | 17. <i>Osthanes.</i> |
| 4. <i>Africanus.</i> | 18. <i>Olympiador. Alex.</i> |
| 5. <i>Augustin Panthes.</i> | 19. <i>Orus.</i> |
| 6. <i>Canides.</i> | 20. <i>Pebichius.</i> |
| 7. <i>Chales.</i> | 21. <i>Petasisus.</i> |
| 8. <i>Calides.</i> | 22. <i>Pelagius.</i> |
| 9. <i>Comerius.</i> | 23. <i>Rosin. Alexand.</i> |
| 10. <i>Chrysorichius.</i> | 24. <i>Rhodianus.</i> |
| 11. <i>Democritus.</i> | 25. <i>Synefius.</i> |
| 12. <i>Geber.</i> | 26. <i>Stephan. ad Heracl.</i> |
| 13. <i>Hermes.</i> | 27. <i>Veradianus.</i> |
| 14. <i>Heliodor. ad Theodos.</i> | |

To which List, if we should add the Modern Writers (Good God!) what a Crowd of Witnesses would here be? In Courts of Judicature, in Matters relating to Mens Lives and Estates, their Fame and good Name, we give Credit to the Testimony of two or three: Then why should we be so hard to believe great Clerks, Men eminent for Letters, by reason of a few frivolous Exceptions and Arguments, which have been often answer'd already in general, by *Geber* and *Ventura*, and *Pedro Bono* of *Ferrara*, and others; but more particularly by *Quercetan*, who hath learnedly confuted *Aubertus*, and by *Maffer*,

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Maffet, *Severinus*, *Rubens*, and *Penotus*, who have answer'd *Eraſtus*, and by *Libavius*, who hath baffled them all in his *Syrraxi Metallicâ*. They all agree that 'tis not abſurd or irrational, to allow and grant ſuch a *Transmutation* as we ſpeak of; for the Confirmation whereof, they produce infinite Proof, too tedious to be mention'd or ſet down here.

But admit 'tis probable (not to ſay without doubt) from what hath been ſaid, that this Art is certain, yet 'tis not Prudence to commit our ſelves to this impetuous Sea: For obſerve the Sentiments of our Author on the Matter, who ſuggeſts unto us, that the Art is ſcarce underſtood by any, and hath reduc'd many to Rags and Beggary. There are Difficulties occur in the Scholar or Learner, in the Maſter or Teacher, and in the Operation and Practice.

1. As for the *Scholar* or *Learner*, he muſt be virtuous and pious, and an earneſt Supplicant for this Gift to Heaven; he muſt be prudent and learn'd, a Linguist and a Philoſopher, well ſeen and verſ'd in the Principles of Nature. He muſt be laborious and patient, clear of all Troubles, diſbanding all Cares; as free from Paſſion as tenacious of Secrets, neither prodigal nor covetous, competently rich both in Money and Books; very ſtudious and reſerv'd, full of deep Contemplations, and hugely wary of Diabolical Deluſions. In a Word, he muſt be well endow'd with Goods of Body, Soul and Fortune.

2. As for the *Maſters* and *Teachers*, there are Difficulties to be met with in relation to them too. *i. e.* The Books of this Art are very hard to be underſtood, for this kind of Knowledge

either lies scatter'd here and there in them, or else 'tis wrapt up in Riddles and Allegories, in Similitudes and Emblems, and those either taken from, 1. *Elementary* Beings, as Men and Animals, Vegetables and Minerals; or else, 2. From the *Elements* themselves, from Dissimilitudes and Equivocations, and strange Contradictions; from unusual Names, odd Characters, and Transposition of Letters, from corrupt Transcriptions, and variety of Style.

2. The third Difficulty is in *Operation* and *Practise*, and that in respect of the *Matter*, which is to be assum'd as the Foundation; and also in respect of the *Management* of that Matter, which ought to be done with fit Instruments. I say, whether we consider either of these, incredible Obscurity and Perplexity will every where arise.

These, these, and not the *Uncertainty* (as is suppos'd) of this Art, are the true Cause why so many of its Votaries lose their Labour, their Sweat and their Pains, yea, and make Shipwreck of their Health, their Wealth, and their Fame too; so that they find in themselves that wonderful *Metamorphosis* which they are not able to produce in *Metals*; and whilst they reach after that which they cannot catch, they lose in the *Interim* what before they possess'd.

(c) [*A common Proverb, I never saw a wealthy Chymist, &c.*]

There is nothing to be expected from Chymistry (if we believe some) but Smoke and Ashes, Sighs and Sweat, Imposture and Ignominy, it being an Art (as they say) that never advanc'd a Man to Wealth and Honour, but hath plung'd hundreds into an Abyss of Poverty. It is very ob-

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observable, that some Men, otherwise prudent and discreet enough, have been charm'd with this Folly of *dabbling* in Chymistry; and others in plight and very good liking, have *jaded* themselves in pursuit of this Vanity, and whilst they have endeavour'd to *plump* up their Fortunes by the help of this Art, they have made them lank and meagre by this fruitless Study.

Chymists promise *Mountains* and mighty Things to others, but can scarce produce *Mice* to themselves; let them drive away *Want* from their own Doors, before they fright and chase away the *Goblin* from the Threshold of others. They are generally reputed a *begging* Crew, born like Musicians under a *Three Penny* Planet; and though they confess themselves to be poor and indigent, yet will they pretend to enrich others, as if their Neighbour's Necessity was more pungent to them than their own Beggary.

Chymistry is wonderful pleasant, for the Tryal of so many rare *Conclusions* it carries with it; but it is very *costly*, and an enchanting kind of Art, which hath melted in *Crucibles* many a fair Lordship, and turn'd many a Mannor into Smoke and Ashes. One presented *Sixtus Quintus* with a Book of Chymistry, and his Holiness gave him an empty Purse for a Reward; as good an *Emblem* of the Vanity of that Science, as it was a *Specimen* of Popish Wit.

C H A P. VIII. Of Distillations.

(d) **T**HE Art of *Distilling* was found out after the Constitution of the *Roman Empire*. 'Tis probable 'twas invented in the very Practice and Operations of Chymistry.

(e) Some say that a certain *Physician* having a Mess of *Coleworts* upon the Table before him, and being suddenly sent for to visit a Patient, he covered at his Departure, his Dish with another, and found it at his Return bedew'd with Moisture. And observing from hence, that the Extraction of *Humidity* was very easy, he bent his Study so far that way, as to give *Being* to the Art of Distillation. Others by following his Example, have so improv'd it, as to bring it to Perfection.

(f) 'Tis an Art that is very *beneficial*, being the happy Parent of *Aqua Vita*, of Oil of Cinnamon, and of several other useful Liquors, and of many wonderful Effects. All those Waters of Succory and Capers, and of other Herbs, which were given as Medicines to sick Persons, are now *distill'd*, which were formerly wont to be *sodden* or *boil'd*.

The C O M M E N T A R Y:

(d) Distillation is taken for that part of Chymistry, whereby elevated Fumes, Vapours and Steams are resolv'd into Waters, Oils, and the like. The use whereof is very frequent in Physick.

(d) [*Int.*

(d) [*Invented after the Constitution of the Roman Empire, &c.*]

As for the Antiquity of this Art, some hold it, that it was in being about 600 Years ago, in regard *Rhasis* and *Albuchasis*, two famous Physicians, about the Year of our Lord 1080. make mention of it: But others would have it to be much older, and that upon the Account of a little *Chest* found in the *Atefine* Field near *Padua*, wherein the Elements by *Maximus Olybius* were devoted as a Present to *Pluto*. But because we know not, but that that may be a *Fiction*, invented by some Body who had a Mind by those Vessels in the Chest to bring credit to this Art; and because we are uncertain, whether that was done by Distillation or some other way, we do not much embrace it, nor wholly reject it; though the Verses inscrib'd upon it, do favour somewhat of Antiquity.

*Plutoni sacrum munus ne attingite Fures,
Ignotum est vobis hoc quod in Orbe latet.
Namque elementa gravi clausu digesta labore
Vase sub hoc modico maximus Olybius.
Adfui secundo Custos sibi copia Cornu
Ne pretium tanti depereat laticis.*

That is,

“ This sacred Gift to *Pluto*, I forbid.
“ You Thieves to touch (for 'tis a Secret hid)
“ With Art and Pains hath great *Olybius* pent
“ In this small Urn, the unruly Element.

This Urn contain'd a less within it wherein were included two Phials most curiously wrought, the one of Silver, and the other of Gold, both full of most exquisite Liquor, which sed a bur

ing Lamp for many Ages. The Urns were inscrib'd with the following Poetry.

*Abite hinc pessimi fures !
Vos quid vultis vestris cum oculis emissitiis.
Abite hinc vestro cum Mercurio perasato caduceatoque
Maximus maximo donum Plutoni hoc sacrum facit.*

That is,

“ Be gone ye Thieves, why stand ye here to pry,
“ Depart from hence with your God *Mercury*,
“ Devoted to great *Pluto* in this Pitcher
“ Lies here a Gift, the World scarce knows a richer.

Some affirm, that both *Greeks* and *Arabians* knew the Use of distill'd Liquors, because *Actuarius*, though one almost of the last of the *Greeks*, yet first made mention of Rose-Water in these Words: *let a Pound of distill'd Juice, or Liquor of Roses (call'd Rhodo-Stagma) be made warm with Sugar, &c.* Among the *Arabians*, *Mesues* (who flourish'd in the Year 1160.) first mention'd a Sublimation of Wormwood-Water and Rose-Water. Others think this Art was known to *Hippocrates*, *Aristotle* and *Galen*.

(e) [*Some say that a certain Physician cover'd his Dish of Cole-worts, &c.*]

As for the Original of this Art Experience tells that it was first hinted and occasioned by the Course of Nature; for Clouds, Rains, and Winds are made in the great World, and Catarrhs in the less by Nature, just as Distillations are made by Art. Nothing is more commonly known than this in a Kitchen; but it seems, *Pancirollus* had rather fetch it from that accidental Instance mention'd by him.

(f) *Tis*

(f) [*Tis a very profitable Art that furnisheth us with Aqua-Vitæ, Oil of Cinnamon, &c.*]

By the help of this Art we can extract from Animals and Plants several kinds of Substances, As 1. *Water*, and that in greater Quantities if the Shrub be green, and less if wither'd. 2. *Oil*, not that fat and sordid Substance, that is squeez'd from Almonds and most Seeds, but a more refin'd Issue of a better Art, which will not grow rancid, putrify, and corrupt with Time. By Virtue of this we can sever from any Body those four *Principles* of all Things, which Nature hath blended together at their first Original, viz. *Water* in a condensed Vapour, *Air* in a white Oil, *Fire* in a red Oil, *Earth* in Dregs.

By Virtue of this Art, we sublimate *grosser* Bodies into *thinner* Spirits, and by it we condense airy Spirits into *thick* Bodies. By this Art we extract the purer and subtiler Virtues of Minerals, and Plants, Stones and Jewels, &c. and that without the *feculency* of impure Matter, and do *enoble* them and advance them into an higher Temper.

'Tis the *Property* of Nature to produce Things, and to endow them with Virtues, but 'tis the *Trick* of Art, when they are produced, to exalt and enrich them. A Distiller can extract Oils and Essences, Elixirs and Tinctures, Salts, &c. He can shatter a Compound into its first *Principles*, and can render them singly more pure and defæcate. He can separate their different Faculties, Powers, and Qualities, so as to use them according to his Pleasure.

You may find many Things relating to this Art not only in *Baptista Porta*, but in *Moer*

Moderns also ; as *Gesner* and *Quercetan*, *Scuerinus* and *Wekerus*, *Langius* and *Lullius*, *Libavius* and *Plasset*, *Dornaus* and *Paracelsus* ; all which did not only extract Waters and Oils, but Essences and Tinctures, Salts and Elixirs, *Magisteriums* and the like.

Distillation is also as *pleasant* as profitable, it being delightful to behold the Miracles of this Art sporting with Nature ; whilst the distilling Vapours (even of the dryest Things) do present us with the prospect of a *variegated* Scene, and shew us a *Landskip* (as it were) of Particoloured Fields. Sometimes you may see an humble Plain, diffusing it self into a great Breadth, and sometimes you may see an ambitious Mountain rising and swelling into a vast Height. Here you may behold the transparent Brooks and Crystal Rivers, there you may contemplate the flowing of Streams, and *Bubbings* of Fountains, and anon have a Prospect of Trees and Fruits.

C H A P. IX.

Of Bells.

(g) *BELLS* were invented about the Year of our Lord 400, by *Paulinus* Bishop of *Nola*, a Town in *Campania*, famous for the Death of *Augustus*. They are call'd *Campane*, because found out first in *Campania*, and also *Nola*, from the Place where they were first made.

They are of very great Use, in regard they give us at a Distance the Hour of the Day or Night, when we cannot see the Sun. They call
us.

us to Prayers, and alarm us to assist at a Conflagration. They assemble the Magistracy, when there is a Summons to Arms. They call Scholars to their Books, and the Judges to the Bench. In a Word, they are Signals that give Notice of all Publick Actions, so that we should be very much incommoded, and at a Loss without them.

The C O M M E N T A R Y.

(g) [*Invented by Paulinus Bishop of Nola, &c.*]

Bells came first from the *Hebrews*, where the High-Priest had in the Skirt of his uppermost Veltment little Bells to ring, when he was in the Holy Place within the Veil: Therefore, methinks 'tis a Vulgar Error to imagine, that *Paulinus* a Man equal to St. *Jerome*, and a Person of celebrated Sanctity, was the first Author of Bells, as if they were not known in former Ages. It is rather more probable, that he chang'd the Use of them to Religious Purposes; for their great Antiquity is well shew'd by *Adrian Junius* in his *Arumadvers. lib. 3. cap. 11.* who tells us out of the Ancient Scholiast upon *Theocritus*, that they were to be rung at Funerals, or at the Death of Mortals, because they fancied that Ghosts and Spectres, were put to flight at their Sound. *Tibullus* seems to intimate, that magical Echantments were hinder'd by Bells, when he sings thus :

Cantat & e Curru Lunam deducere tentat,

Et faceret si non æva repulsa sonent.

i. e.

“ They would charm down the Moon, but that

“ their Spells

“ Are hinder'd by the Noise of sounding Bells.

For

For they supposed that the tinkling of Brass or Metals hinder'd the sound of magical Verses from ascending to the Moon, and that by this Means she was assisted in her Labour. Hence came the Custom of ringing of Bells, as oft as it Thunders, for their Complosion and Beating of the Air, is thought to be a Means of dispersing that Meteor.

Strabo likewise tells us in his 15th Book, that the *Persians* call'd an Assembly before Day-light by the sound of a Bell; ἡβρα ἡαυῆ οἰεῖ ἱερθεῖ. We may remember also *Aaron's Bells*, and see further in *Cæl. Rodogin. Lect. Antiq. lib. 19. cap. 11.* copiously and at large. Concerning the Matter or Substance of which, we may observe that *Durantus* (*de Ritibus Eccles. Cathol. lib. 1. cap. 22.*) saith of the Citizens of *Cæsarea*, that upon a joyful Occasion, they went about *Ligna sacra pulsantes*, whereby he means that they had some hollow Vessels of Wood, which they used instead of Bells. Some say, that in the Country of *Prester John* they have Bells of Stone.

As we have Bells in our Churches, so had the Pagans in theirs. The Emperor *Octav. Augustus* was the first, who in the highest Place of the Temple of *Jupiter Capitolinus* hung Bells: And at the ringing of them, the Heathens (as was said before) were wont to meet at their Assemblies as at Baths.

The *Laconians* were wont at the Death of their King, to tinkle a Caldron instead of a Bell. The *Jews* had Minstrels, as may be seen in the 9th of *St. Matthew*: For at the raising to Life *Fairus* his Daughter, the Men of Musick were commanded to troop off. We read that the Priest

Priest of *Proserpina* was wont to ring a Bell at *Athens*, and so did they of the *Mosaick* Oeconomy, *Exod.* 20. 34. in their Pontifical Vestments. The Priest had a Bell and a Pomegrate upon the Hem of the Robe round about, that the Sound might be heard at his ingress and egress from the Holy Place. It did import and signify that he was to be Vocal, not in calumniating, but in teaching and exhorting, in reproving and comforting, &c. Hence a Bell was an *Hieroglyphick* of Predication or Instruction.

Suidas tells us, That Watchmen carried Bells about them in the Night, and that Answers were given presently at their Sound. And the same Author saith, that they were wont to try generous Horses by the Noise of Bells, whether timorous or bold, and Proof against the Clamour and Tumult of a Battle.

The *Romans* were called at set Times to and from the Bath by the Sound of a Bell, according to that of *Martial*.

*Redde Pilam, sonat as Thermarum; ludere pergis?
Virgine vis solâ lotus abire Domum?*

He adviseth him, if they would wash, to do it quickly for the Bell rings, and by-and-by there would be no bathing but in cold Water. They were therefore call'd by a Bell to the Bath, which was e're long to be shut.

The *Gracians* in their Fish-Market, a little before Supper rung a Bell, as *Plutarch*, informs us in the 14th Book of his *Symposiacks*, where he observes, that they are not call'd Gluttons and Gormondizers who are Devourers of Flesh, as *Hercules*, or of Figs, as *Plato*, or of Grapes, as *Arceflans*; but those who eat in the Fish-Market

Market, and idly fantring about the Stalls there, do presently here the Sound of that Bell.

There is a pleasant Story to this Purpose in *Strabo*, which is this: "While a certain Fidler was entertaining the Mob with a Specimen of his Art, it so happened that the Fish-Market Bell rung; upon the Sound whereof, all the People fled to their Piscary Negotiations and left Crowdero alone, except one who was very deaf. The Fidler observing it, came to the honest Man, and thank'd him for his Civility and the great Respect he shew'd to Musick, in not leaving him (like the rest) at the Sound of the Bell. What saith the deaf Man, hath the Bell rung? I marry hath it. Then God be with ye, (Mr. Fidler) quoth he, and away he scamper'd and shew'd the Man of Mirth a fair Pair of Heels.

Ringings of Bells was first ordain'd by *Sabinianus*, that the People might be assembled together to hear Divine Service at a certain Hour of the Day. A fuller Account of the ancient use of Bells may be found in *Hierom. Magius's* Book upon that Subject, *De Tintinnabulis*.

C H A P. X.

Of Clocks.

AFTER the Invention of Bells came the Use of Clocks, the Manner of making which we read in *Virruvius*, who tells us how a Chariot may be made, which shews how many Miles are dispatch'd in an Hour, in which Chariots the same Wheels are contriv'd as are used in

in Clocks, only instead of the Pebble-Stone, which dropt hourly into the Basin, there is now (*b*) an Hammer ; which striking on a Bell, tells the Number of the Hours.

Some make the Pictures of Angels moving from their Places to strike the Bell, and to do Homage in their Way to the *Virgin Mary*. Others have invented other kind of Fashions. (*i*) They are now a-days made with such Art and Curiosity, that they will rouse a Man up at what Hour he will ; and they are made in such a Manner, as that they may without any Weight be laid upon a Table, or may (like an Almond) be hung about the Neck.

Some represent the *Phases* and Appearances of the Moon in the (*k*) Heavens. But that is not all, there are other Instances of humane Ingenuity in this Particular ; for I saw one in the Hands of the Reverend Signior *Delphino*, which had Circles about its Dial-plate, representing and shewing the Eclipse of the Sun ; which in moving through them, was in the same Sign in them as he was in the Heavens. He set at Night, and rose in the Morning in the same Point of the Horizon there as he did in the sky.

The Moon also was sometimes at a *Distance* from the Sun, and sometimes (as 'tis in the World) in Conjunction with it. I am told, there was a Watch presented by one of *Cremona* to *Charles V.* which contained the whole Frame and Machine of the Heavens, together with all the Stars of the Firmament and Signs also, which were wheeled about just as they are in their celestial Orbs ; so that the Heavens seem to be brought down to the Earth. It cannot be denied.

nied, but that the Invention is rare and excellent, and worth our Observation.

The COMMENTARY.

(b) [*An Hammer striking the Bell tells the Number of the Hours, &c.*].

The Ancients formerly measured their Time by *Clepsydra* (of which in the former Book) just as we do now by Hour-Glasses, but not so well and conveniently, in regard Water is rarified by Motion, so that they could not exactly compute the Time. The Ancients had also *Sundials*, which declared the Hours by the Shadow of the Hand, the Invention of which is ascribed to *Anaximenes* a *Milesian* by *Pliny*. It was a good while ere they were used at *Rome*: But in the twelve Tables there was only rehearsed the rising and setting of the Sun, and a few Years after Noon or Mid-Day was found out. And this was only on clear Days, when they might perceive the Course and Altitude of the Sun. The first Dial was set upon a Pillar openly, which stood behind the common Pulpit or *Rostra*, at the Charge of *Valerius Messala* then Consul in the first Punick War. There was a famous one in *Mars* his Field, from an Obelisk erected and golden Figures placed horizontally about it, and the Surface of the Ground whereon it stood was pav'd with Square-Stone; it had the four Winds in the four Corners with this Inscription [*ut Boreas spirat*] and all of Mosaick Work; it was brought out of *Egypt* by *Augustus*, and is described by *Jacobus Laurus*.

(i) [*They*

(i) [*They are now a-days made with such Art and Curiosities, &c.*]

Our Author mentions here the several Forms and Fashions of Watches, which indeed are so various, that it would be a tedious Piece of Work to reckon up all of them. But when he tells us that the Motions of the Celestial Spheres are express'd in some, he put us in Mind of *Archimedes* his Invention, who made an Heaven of Brass, representing the Planets, and all the Movements of the natural Clock-work of the supernal Orbs. And (without doubt) such was that Sphere of *Silver* presented to *Solyman* the Great *Turk*, together with a Book by the Artificer how to keep it in Motion, and also that other made of Glass, wherein *Sapor* the *Persian* King sitting on his Throne, did (like an upstart Deity) contemplate under his Feet that exquisite Machine.

Who doth not perceive how humane Ingenuity copies in many Thing, even *Divinity* it self? *Zeuxis* his Pencil put a Fallacy on the Birds, and drew so lively the Deformities of an old Woman, that the Painter almost burst with Laughter at the Sight of the Picture. Why should I tell you of *Myro's* Heifer, so lively shap'd in a Figure of Brass, that it impos'd not only on the Herd alone, but cozen'd and cheated the Herdsmen too. What need I mention the Marble *Venus*, so curiously wrought; nay, rather begotten by *Praxiteles*, that it mov'd the Blood of the Beholders, and had as many Lovers as it had Spectators.

(k) [*But*

(k) [*But this is not all, there are other Instances of Humane Ingenuity, &c.*]

For some write, that the *Egyptians* through the ineffable Power of the Gods, framed some Images which spake articulately and mov'd too; and we read that *Albertus* made an Head of Earth, which at Times was vocal. *Baptista Porta* tells us how it may be done with a Pipe of Lead; so that we stand not so much amaz'd at *Architas* his flying Pigeon that was made of Wood.

(l) [*May hang (like an Almond) about the Neck, &c.*]

Let us stand and admire here those little and minute Pieces of Art, which by reason of their exquisite and extreme Exility, do almost fly the Sight. *Callicrates* made a Pismire of Ivory, and other little Animals in so small a Volume, that their Limbs and Parts were hardly legible. And *Myrmicides* the *Milesian*, among other Monuments of his singular Ingenuity, made such a Pigmy-Chariot, as that a Fly could cover it with one single Wing. There was seen at *Mecklin* fifteen Pair of Dice (their Spots distinguishable) in the Womb of a Cherry-Stone.

The *Iliads* in a Nut-shell, and the *Lord's-Prayer* in a Single Penny, and *David's Psalms* in the Hair of King *Charles I.* his Brazen Figure in *St. John's-College Library* in *Oxford*. I say, these Curiosities are the *Brachigraphy* or Short-hand of Art, and the Authors of them must be excellent *Sheltons*,

C H A P. X.

Of the *Mariners-Compass*

(m) **N**either less profitable and advantageous is the Use of the (n) Magnet, which always inclines and tends to the North ; so that in a cloudy Day, or a dark Night, nay in a Storm or Tempest, you may know by this *Pixis* where you are ; which is an (o) admirable Art, and very easy to those that understand it.

(p) 'Twas found out at *Almafi* a City of *Campania*, now called *Terra di Lavoro*, according to *Blundus* in his *View of Italy*. (q) The Inventor of it is not known. The Ancients sailed by the Pole-Star, which they call *Cynosura*, and also by other Stars, as *Virgil* shews in his fifth Book.

-----*Clavumque affixus & harena
Nusquam amittebat, oculisque sub astra tenebat.*

-----“ His fasten'd Hands the Rudder keep,
“ And, fix'd on Heav'n, his Eyes repel invading
“ Sleep.

If the Heavens were dark and gloomy, they knew not where they were, but quite lost in a Manner according to that of the forecited Poet, lib. 3.

*Tres adeo incertos caca caligine soles.
Erramus pelago ; totidem sine fydere noctes.*

“ Three Starless Nights the doubtful Navy strays
“ Without Distinction ; and three Sunless Days.

But now Mariners guided by Experience,
gain'd by Observation of the North and of the
Compass

Compass, do always know where-abouts they are.

The C O M M E N T A R Y.

(m) [*Neither less profitable is the Magnet, &c.*]

By the Help of the *Pixis* Men encompass the World, and by frequent Navigations do put (as it were) a Girdle about the earthly Globe. By Virtue of this, Merchandize is improv'd and becomes gainful, Converse is enlarg'd, and Men have Commerce and live in the Republick of the Universe as in one City.

(n) [*Magnet.*]

'Tis sometimes call'd *Acus*, a Needle, *Acicula Marina*, and sometimes a Magnet, *Acus Navicularia Pixis*, and *Pixedula Nautica*.

(o) [*'Tis an admirable Art, &c.*]

'Tis certainly most worthy of our Wonder above all Inventions, whereby so many Seas are easily plow'd, and upon whose Account alone, the safety of so many thousands of Men is committed to the Depth of the Ocean, to the vastness of its Waters, and the impetuosity of the Winds. 'Tis strange! that Sums of Money; nay, that the Lives of Princes should be committed and trusted to so small a Vessel, and to so little a Needle.

The Compass is an Horizontal Division of the thirty-two Winds, upon a round Piece of Paste-Board set in a Box; in the Centre whereof upon a Pin of *Latton cinque* bor'd, the Needles or Wires first touch'd with the Stone, are placed. This Box hangs in another Box between two Hoops of *Latton*, that however the outward Box is tossed up and down by the Motion of the Ship, yet the innermost may always hang

hang level to the Horizon. It is placed in the middle of the Poop, upon a right Line in a Gind, to pass by the Main-Mast through the Centre of the Ship, and so puts the Pilot in his Way.

(p) [*Twas found out at Amalfi, &c.*]

A Town in *Naples* about 300 Years ago, by one *Flavius* as the general Report is: But we find many Authors (of good Credit) that are of another Opinion. Dr. *Gilbert* our Countryman (*De Magnete*) seems to assert, that *Paulus Venetus* brought the Use of the Compass from the *Chinese*. And *Paulus Ostorius* (of the Acts of King *Emanuel*) ascribes it to *Gama* and his Countrymen the *Portuguese*, who, as he pretends, took it from certain barbarous Pyrates roving about the *Cape of Good Hope*. But *Goropius Becanus* thinks his Countrymen the *Germans* have a title to the Invention, because the 32 Points of the Winds borrow the Name from the *Dutch* in all Languages: But *Blondus*, follow'd by *Pancirollus*, (both *Italians*) will not have their Country lose the Praise thereof.

(q) [*The Inventor is not known, &c.*]

Most suppose *Flavius* to be the Author of it, tho' some ascribe the Invention to the Citizens of *Amalfi*, who in the Year 1300. had the Virtue of this Magnetick Needle from one of their Town called *John Goia*. Others ascribe it to one *Vasco de Gama*, a *Portuguese*, the first Discoverer of the *East Indies* in the Year of our Lord 1497. and a third sort of People think that this Instrument was brought out of *China*, by one *Marcus Paulus* a *Venetian* in the Year 1260. Whoever he was that was the first Discoverer of this noble Invention, 'tis pity he

should lie hid in so neglected an Obscurity; and that so great a Benefactor to the World, should want a *Lapidary*, when the Disturbers of it have so precious a *Memory*. And this unknown Fellow (if it was *Flavius*) hath deserv'd more than ten thousand *Alexanders*, and as many *Aristotles*. And this single Art hath improv'd Knowledge, and done more good to the World, than all the Niceties of the subtle Schools.

C H A P. XII.

Of Printing.

(r) **T**HE Invention of Printing also is worth our Notice and Observation, which was found out in *Germany* in the Year 1440. 'Tis reported, that one sailing through the (s) *German* or *Baltick* Ocean, happen'd to be carried into *China*, formerly called the Country of the *Seres*, where he (s) observ'd the Art of Printing to be in Use.

And therefore having seen their Characters and their Forms, and curiously observed them, after his Return into *Germany*, he improv'd and perfected the like Art of *Calcography*. An Art very useful and beneficial, in regard all Things before were fain to be written, and there were several Shops built on Purpose for that very Use. A Thing very laborious and chargeable, especially to those that bought Books. I saw some few Pages printed at *China*, tho' it is not said or recorded that *Typography* was ever there.

The COMMENTARY.

(r) [*The Invention of Printing is worth our Notice, &c.*]

. This rare Art is inferior to none, whether we consider the Dignity, Utility, or Curiosity of it. The *Munificence* of Nature seems to be quite exhausted and wholly conquered by so noble an Invention, which equals the greatest Miracle of Life, and cannot be parallel'd by the nine *Muses*, to every one of whom Antiquity ascrib'd some Art or Science.

Printing is an excellent Gift bestow'd on the World in the Dotage of Nature, for the Improvement of Humane and Divine Learning, by bringing to Light the Authentick *Manuscripts* of knowing Men. If it be commendable to transmit to Posterity the Inventions of others, the Product and Issue of their Sweat and Labour, Ingenuity and Study, lest devouring Time and envious Oblivion (those *Banditti* and *Pirates* of Memory and Science) should deprive succeeding Ages of the Knowledge of them; I say, if 'tis Praise-worthy to do this, Then what large Encomiums doth *Typography* merit, whereby glorious *Achievements*, and renowned *Arts*, ingenious *Conceptions* and sublime *Speculations* are eternally registred? All which had perish'd for ever in Oblivion, if not rescued from the Grave and consecrated to Immortality by the Help of this Art. If exquisite *Inventions* have so honour'd Mankind, as to enrol Mortality among the *Divinities* of the Gods; then with what Titles of Dignity ought *Germany* to be enobled, whose Sagacity and Industry hath enrich'd the World with so rare a Piece of Skill?

This rare Art and exquisite Mystery hath preserv'd from Corruption the choicest Authors, and hath discover'd to the World the noble Achievements and Acts of all Nations. It restores the Memory of hoary Antiquity, and keeps from being lost the Divine Wisdom of the ancient Philosophers. Many written Copies that for many Ages had been buried in Obscurity, by this excellent Invention have been brought to light, and to enjoy *Immortality*. Typography in its Infancy was in great Admiration, and is as beneficial and profitable, as surprising and marvellous; and had been more wonderful, if it had not been so common. It was first undertaken with more Boldness and Confidence, than Assurance or Certainty: But now by the Assistance of humane Wit, 'tis arriv'd to that Perfection wherewith it is crown'd.

[*An Art very useful and beneficial.*]

In saving vast Charges which Men were at in copying of Books; in regard one Printer (they say) can print as much in one Day, as the swiftest Scrivener, or the readiest Pen can write in a whole Year.

(f) [*Which was found out in Germany, &c.*]

All Authors do unanimously ascribe this Invention to one of that Nation; and 'tis said that *Tully's Offices*, was the first Book that was printed, and that by one *John Faustus* at *Mentz*: For in the *Bibliotheca Augustana*, there is this Inscription,

Præsens M. Tullii clarissimum opus Johan. Eust, Moguntinus Civis, non atramento, plumali Canna, neque cerea, sed arte quadam perpulchra manu Petri de Gernsheim Pueri mei feliciter effeci. Finitum Anno 1466. Die 4 Feb. That

That is,

“ I *John Faust* Citizen of *Mentz*, have hap-
 “ pily compos’d this present excellent
 “ Work of *Tully*, not with Pen and Ink,
 “ but by a certain ingenious Art, thro’
 “ the Assistance of my Servant *Peter de*
 “ *Gernsheim*, the fourth Day of *February*,
 “ in the Year of our Lord 1466.

Angelus Rocca in his Account of the *Vatican* Library (Printed at *Rome* in 1591) saith, that he had seen a Grammar written by *Donatus*, printed upon Vellum with this Inscription at the Beginning:

*Johannes Faustus Cives Moguntinus, Avus mater-
 ternus Johannis Schaffer, primus excogitavit
 imprimendi artem Typis areis, quos deinde
 plumbeos invenit, multaque ad poliendam ar-
 tem addidit ejus Filius Petrus Schaffer: Im-
 pressus est autem hic Donatus primus om-
 niu[m] Anno Dom. M. CCCCL. Admonitus
 certe fuit ex Donato Hollandia prius im-
 presso in tabula incisa.* But this he doth
 not say was printed in the Book.

In an old Chronicle of *Colen*, printed in 1496, ’tis said, that the Hint of this Art was given from *Holland*, where an Impression of this *Donatus* had been made before that at *Mentz*. So that upon the whole, the Invention may be granted to *Holland*, but improv’d and propagated in *Germany*; whence it was carried again to *Holland*, and from thence brought to *England* very early by *Caxton* and *Tourner*, whom King *Henry VI.* sent at his own Expence to learn it. These prevail’d upon one of the Printer’s Men

at *Harlem* to steal away, and come with them to *England*, where being arriv'd, they set to Work at *Oxford*, and having taught other Men, Printing-Houses were set up at *Westminster* and *S. Albans*, *Worcester*, and at other Places.

(t) [*Who observed the Art of Printing in China.*]

Several Historians tell us, that the *Chinese* were wont to Print, and that that Art was in Use among them Time out of Mind. Some say, that it began with that Kingdom, and yet tell us, that it was in Use there about 5 or 600 Years before it came into *Germany*; which if it be so, then it will follow that the Nation of *China* is not above 600 Years standing, which is against the Current of History, which shews that People to be ancient enough.

Others tell us, that there were *Printers* in the *Indies*, who printed the Histories and sacred Ceremonies of those Countreys after the same Manner as we do. Pope *Leo* shew'd to some of his Friends, one of their Volumes sent to him for a Present by the King of *Portugal*. They are described by Travellers after this Manner: They have narrow and long Leaves of thin and smooth Paper whereupon they write, not from the Left Hand to the Right. nor (like the *Hebrews*) from the Right to the Left, but from the Bottom to the Top. One of these Books is to be seen in the *Vatican* at *Rome*, and in the *Lau- rentian* Library of King *Philip*, i. e. in the *Escorial* in *Spain*.

But now what do these Men tell us, but only that *Printing* was in Use in other Places, besides *Europe*? But it will not follow therefore, that the *Germans* did not first invent it in this Quarter of the World. For what Absurdity

is it to say, that one and the same Thing is *New* and *Old* in respect of divers Nations? Thus the *French Disease* is but of Yesterday (as it were) and not much above 100 Years old in these Parts, but hath reigned above 1000 in *America*. Thus *Typography* is old in *China*, but as found out in *Mentz*, it is a Modern Thing. And though some tell us, that it came from the *Chinese*, and was propagated by the *Scythians* and *Muscovites* into *Germany*, yet we cannot meet with any Colour of an Argument that favours the Opinion.

But how familiar and *common* soever Printing was in *China*, yet it is prov'd by Authors to vary and differ from ours; for they do not join their Letters as we do, but form the *Table* into single Leaves, which hath Letters on both Sides. This Way, though it seems to be Laborious, yet they are very quick and ready in it.

Besides, they are wont to make *White* Letters in *Black*, in which Thing they excel us; for the doing of this, they have Letters of *Stone*, upon which they lay a moistned Paper, which they thrust into or join to the Cavities of the *Types* or Figures; now whilst those Parts so united or clapt into those Hollownesses of the Characters or Types are more depress'd than the rest, they *Tinge* the Paper all over with Ink, which because it cannot reach and black the Bottoms of the Letters, therefore the Letters remain white.

Some rob the *Germans* of the Honour and Glory of this Noble Invention, and accuse *John Faustus* of *Mentz*, the commonly reputed Author of it, for stealing this Art, and give the Credit of it to a Citizen of *Harlem*, one

Laurence Coster. This Man (say they) walking in a Wood not far from the Town, began to make *Beechen* Bark into the Form of Letters, and Printed a Verse or two as a Pattern for his Nephews. And having succeeded pretty well in this first Attempt, he began to project greater Matters, and invented the most glutinous clammy and thick kind of Writing Ink, and then figur'd or printed whole Beards with Characters. Some affirm, that they saw some *Adversaria* printed after this Manner, as an Essay and Rudiment of his Work, and that only on every other Side, but not endorsed. Afterwards he changed his *Wooden* Characters into *Leaden* ones, and those into *Tin* ones, as being more durable and solid, and less flexible and yielding. This Man, prospering in his Invention, and growing Rich by his Trade never heard of before, began to like and be fond of his Employment; and therefore still as he increased in *Wealth*, he increased and augmented the Number of his *Workmen*; among whom was this *John Faustus*, who being skillful in composing, and in all the Secrets and Mysteries of *Typography*, took his Opportunity (when they were all at Church) on a *Christmas-Day*, to rob his Master of his Characters and Implements, and shewing him most cleverly a fair *Pair of Heels*, he troops to *Amsterdam*, and from thence to *Cologne*, and at last to *Mentz*, where he set up and open'd his Shop, to reap the Fruits of his cunning Knavery. This Story is attested by the Magistracy of the Town, and is by them transmitted down to Posterity. But however *Germany* will not suffer the Honour of : Invention to be extorted from them.

The true Story of Printing is this: There was in the Year 1440. a certain Citizen of *Mentz*. *John Fust* by Name, who considering with himself, out of his great Love to Learning and Learned Men, that by reason of the *Scarcity* of Books, and the vast *Charge* in copying and transcribing them, many ingenious Persons were discouraged from Study, began to think of a Way, how with less Labour and Expence, good Authors might be compass'd and procur'd. After some serious Thoughts upon the Matter, he at last popt upon this *Expedient*, which was the cutting of the Characters of the *Alphabet* in Wood, and to form them for an Impression, and then to cover them with Ink, which, because it was fluid, did run about the Characters, and most grievously confounded them, he found out at length after much Study, a black, glutinous, thicker kind of Substance, and put the *Alphabet* cut in Wood under little Presses, and so began to Print.

This his Art, because never known before, and because those Wooden Alphabets were cheap and easy to be had, was much cried up and admired by all. Wherefore *John Fust* took an Occasion, not only to cut *Donatus* after this Manner in Wood and to Print it, but also to study how to improve and perfect this Work, especially seeing 'twas troublesome and laborious to cut whole Columns or *Forms* (as they call them) in Wood; and therefore he found out this compendious Way, which was to cut in Pieces the Boards on which the Alphabetical Characters were *incis'd*, and to keep the good Letters, and to make others in the Room of those that were worn; and so he began the

composing or joining of the Letters, though he perceiv'd a very great Expence both of Time and Labour, in framing every Letter by it self

But this *John Faustus* or *Fust* us'd other Mens Endeavours in this New Operation. Among the rest whom he employed, there was one *Peter Schaffer*, who curiously observing his Master's Trade, was very desirous to be instructed in it. And being a Man of some Parts, he endeavour'd to improve it; and indeed found out a Way how the Characters might be indented, or engraven into the *Matrices* (as they call them) and flow melted out of them. The Alphabet being thus cut, he shews the Letters that were melted or cast in it to his Master, who was so transported at the Sight, that he gave him in Marriage his only Daughter. And though at first, there was some Difficulty in this kind of Characters, their Matter being not hard enough, yet afterward there was a *Mixture* found out, which was able to endure the Violence of a Press.

Things being brought to this Pass, the Father-in-Law; and the Son-in-Law made all their Domesticks swear *Secrecy*, and never to discover the Mystery of this Art. The Tables of the Alphabet, which were the Rudiments of the Work, they kept very close, and shew'd them at their Pleasure to their Special Friends.

One *John Guttentberg* living at the same Time at *Mentz*, at the very next Door to *Faustus* or *Fust*, observ'd that *Typography* was very much applauded, and perceiving withal, that it was very beneficial, he contracted an Acquaintance and a great Familiarity with *John Fust*, and being a wealthy Blade, offered him Money for his

his necessary Expences, which was a Thing very grateful to *John Fust*, in regard he found the Charge to increase, and wanted Parchment to Print on. And therefore, he and *Gutenberg* made an Agreement to be Partners in the Matter, and (whether win or lose) to share and share alike, and to be equally concerned touching the Expences about their Art : But *Fust* spending more than the other thought necessary, he refus'd to pay his Part or Proportion ; whereupon a Difference arising betwixt them, they commenc'd a Law-Suit immediately at *Mentz*. And after an hearing or two, the Issue was this, that upon *Fust*'s swearing that all the Money laid out was not converted to his own private Use, but was wholly employ'd about the Art of *Typography*, *Gutenberg* should pay, as really he ought, his promised Quota.

So that it is evident from the Premisses, that *Gutenberg* was not the first Author of *Typography*, but that some Years after it was found out, he was entertain'd as a Partner or Companion by *Fust*, whom he supplied with Money. Wherefore *Gutenberg* being sentenc'd to bear Part in the Expences, and the Difference thereupon growing much wider betwixt them, having learn'd the Art, went from *Mentz* to *Strasburg*.

After this Quarrel, others who had acquir'd the Trade from *Fust*, began to leave him and went to *Frankfort*, and to other Places, especially in the Year 1462. when *Mentz* was taken and deprived of its former Liberty. And so it came to pass, that this Art was known, and was of publick Use.

This

This is the genuine History of the Original of Printing, taken from ancient Monuments and Records, which are yet extant and remaining, and it may be confirm'd by many old Books which were then Printed. For *Fust* himself and his Man *Schaffer*, at the End of the Books which they Printed, did without any Contradiction profess, That he *John Fust* was the Inventor of *Typography*, and that *Peter Schaffer* was his Assistant, as it will appear from the Sequel: For in the Library of the Electoral Palatinate, there were several Bibles; from whence, these following Lines annex'd at the End were taken, viz.

*Præfens Rationalis Divinorum Codex officiorum
venustate Capitalium decoratus, Rubricationibusque distinctus, artificiosa adinventione
Imprimendi, ac Characterizandi absque calami exaratione sic effigiatus, & ad Eusebiam Dei industrie est consummatus per Johann. Fust Civem Moguntinum & Petrum Gernsheim Clericum ejusdem Diœcesis. Anno Dom. 1459. sexto Die Octobris.*

i. e.

“ This sacred Book beautify'd and mark'd
“ with red Capital Letters, was made
“ and finished to the Divine Glory, not
“ by the writing of any Pen, but by
“ the Artificial Invention of Printing
“ by *John Fust* Citizen of *Mentz*, and
“ *Peter Gernsheim* Clerk of the same
“ Diocese. *Anno Dom. 1459.* and the 6th
“ Day of *October*.

Another

Another of this Nature may be seen at the End of *Tully's Offices*, in the Library at *Mentz*, as was said before ; or you may take the Story in short thus. Some say that one *Laurence Coster* of *Harlem*, found out this Art of Printing by accident, who walking in the neighbouring Wood for his Diversion, fell to whittling little Sticks he took up, and at length form'd a Letter upon one of 'em, which pressing upon his Hand first, and afterwards with Ink upon Paper, found it made a legible Impression, which accidental Hint, being an ingenious Man, he improv'd and brought the Art to Perfection ; when a roguish Servant he had employ'd in it, stole his Implements, and run away to *Mentz*, and there set up for the Inventor. They of *Mentz* deny this, and affirm that a Citizen of theirs, *John Fust* by Name, was the sole Inventor. The *Harlemers* have many great and learned Men on their Side in this Dispute : However, the first printed Books extant, having been publish'd at *Mentz*, carries over many to the other Party.

C H A P. XIII.
Of Paper.

(*) THE Invention of Paper is also very beneficial, in regard. Men formerly were at very great Charges for writing. And to enlarge a little upon this Subject, *Pliny* in the 11th Chapter of his 13th Book, and *Virgil* in the third of his *Aeneids*, tells us that the Ancients were wont to write on (*) *Palm-Leaves*, according to those Verses of the Sibyl.

*Insanum vatem aspicias, qua rupe sub imâ,
Fata canit, foliisque notas, & carmina mandat.
Quacunque in foliis descripsit nomina Virgo.
Digerit in numerum, atque antro seclusa relinquit.*

i. e.

- “ The mad prophetick Sybil you shall find,
“ Dark in a Cave, and on a Rock reclin’d :
“ She sings the Fates, and, in her frantick Fits,
“ The Notes and Names inscrib’d to Leafs
 commits.
“ What she commits to Leafs, in Order laid,
“ Before the Cavern’s Entrance are display’d:

And hence the Expression *Folium Chartæ*, a Leaf of Paper, though not written on a Palm-Leaf.

Afterward they began to write on the (x) thin *Films*, or Skin growing between the Bark and the Tree, which are call’d by the Latins, *Libri*. And hence it is that whatever is written upon, is call’d *Liber*.

But in regard this Matter was frail and brittle, they began to record publick Memoirs in (y) Volumes of *Lead*, and private Matters in (z) *Linen*. And at length they found out the way of writing on (a) *Wax*, which they spread on thin Tables, and then made Letters upon it with an iron (b) *Style*. And hence it is that the manner of writing, or the peculiar Tenour or Strain of Phrase is call’d a *Style*. (c) Those Tables among the Latins had several Names, as *Pugillares*, a *pungendu*, and *Tabula*, & *Codicilli cerali*.

(d) After *Alexandria* was founded by *Alexander* the Great, *Papyrus*, a sedgy kind of Weed was found out in the Fens of Egypt, and in the
Itag-

stagnant Waters of the Nile; and this Rush, its Threads of Pith being taken out by a Needle, they divided and slic'd into thin Films, or Skins, which they call'd *Charta*, from a City of Tyre of that Name, near unto which this Bulrush grew. And therefore whenever we meet with the Word *Charta* in Latin Authors, it is to be understood of Paper.

When *Ptolomeus Philadelphus* erected a Library, furnish'd almost with 1700 Volumes, *Eumenes* out of Emulation built another on purpose to out-do him; at which *Ptolomy* being somewhat concern'd, forbad the Exportation of Paper out of his Territories, and by that means prevented him from writing Books. *Eumenes* understanding, and being sensible of this, found out at *Pergamus* another way of making Paper, for he was wont to flea Beasts, and of that thin Film or Skin next to the Hide or Pelt, he made a sort of Paper to write on, call'd (e) *Membrana*, so nam'd from covering the Members of Animals, or because the Latins call'd the Skin or Hide by that Name. 'Tis call'd also *Pergamena*, from the City *Pergamus* (now *Bergamo*) where it was first found out, as *Pliny* tells us in his 13th Book.

(g) *Josephus*, in the 12th Book of his Jewish Antiquities, saith, that *Eleazer* the High-Priest sent the *Septuagint* wrote in Parchment to *Ptolomeus Philadelphus*, which if it be true, we must needs grant that Parchment was found out before *Eumenes*, but that he only took great Care for vast Quantities of it to be made, and convey'd over all *Asia* and *Greece*, and therefore was the commendable Author of it.

When the *Lombards* came into *Italy*, they us'd smooth and thin Boards, which I saw myself, and read, though written in *Lombard* Characters.

(b) At last was found out the way of making Paper of *Rags* ground and macerated, and steep'd in Water, upon which a Man may write very commodiously, and with great Convenience; and here the ancient Word Paper is still in use. And thus you see that that Matter or Stuff whereon we handsomely write, is at once succinctly and historically described.

The C O M M E N T A R Y.

(u) [*The Invention of Paper is very beneficial, &c.*]

Experience can testify this, in regard Antiquity was formerly at such vast Expences for writing; so that the Books of one Author then, were sold for more than a whole Library now; because four Men can print more in three Months, than ten (though swift Scribes) can write in twelve. So that the Price of laborious transcribing being brought down, every private Person may furnish himself with Books, as well with a little Money, as Princes and Nations could before with vast Sums.

(w) [*They were wont to write on Palm-Leaves.*]

Some say, that for *Palmarum Folia*, we must read *Malvarum*. *Virgil* tells us that the Ancients were wont to write on *Leaves*.

----- *Foliis nec carmina manda,
Ne turbata volent rapidis ludibria ventis.*

----- "Commit not thy Prophetick Mind
"To fleeting Leaves, the Sport of every Wind.

And.

And *Juvenal* affirms the same in his eighth Satyr.

Credite me vobis Folium recitare Sybilla.

“ Believe it, I a Sybil’s Leaf recite.

’Tis reported by some Authors; that this way of writing is in use among the *Indians*, who write not with *Ink* and *Paper*, but with an *iron Pen* or Instrument call’d a *Style*, on Leaves of Trees, which for Likeness sake they call Leaves of Palm, though we shewed you before in the first Chapter of the second Book, that there were no Palm-Trees in the *Indies*.

They cut the Leaves so as to make them even, and of an equal Length, and preserve in these Books for a long time the Memoirs and Histories of many Ages. They bore a Hole thro’ the Ends or Extremities of the Leaves, and join them together with two smooth Sticks bor’d just after the same manner, so that the Leaves being laid in order, and the Sticks fastned to them, they put Strings through the Holes, and roll them up and tie them close, and winding the Surplusage of the String about them, they bind them up with a fast Knot. And when they go to read, they loosen the Strings, and lay them open before them. And from this Custom of writing on Leaves it is, that the Pages of Books are called *Folia* even to this Day.

(x) [*Afterward they wrote on the thin Bark, &c.*]

Of Trees, *i. e.* of Ash, Maple, Beech, Elm and white Poplar; and from hence it is that whatever is written on is called *Liber*.

(y) [*And then in Volumes of Lead.*]

Of which we may read in the 10th Chap. of *Job*, ver. 23, 24. *Oh that my words were written!*

On that they were printed in a Book! That they were graven with an iron Pen, and lead in the Rock for ever.

(2) [*And then private Matters in Linen.*]

Livy mentions these Books in his 1st Decad, and the 4th Book. [*Licinio hand dubie linteos libros sequi placet.*] And again, [*Nil constat nisi in libros linteos relatum inter magistratus Præfetti nomen.*] The Name of a Præfect must be enrolled in *Linen Books* among the rest of the Magistrates. Vopiscus in the Life of *Aurelian*, speaks of them. [*Et si his non contentus fueris, lectites Græcos, immo Linteos libros requiras, quos Ulpiana tibi Bibliotheca cum volueris ministrabit.* i. e. If not content with these, read *Greek*, nay *Linen Books*, which you may have in the *Ulpian Library*.

These *Linen Books* of the Ancients were not like ours (which yet without a Solœcism may be call'd *Linteï*) but were drawn on a Linen Web, just as various Images are pourtray'd by Painters on Pieces of Cloth. We may add to these the *Parthian* Garments, into which they did rather interweave Letters, than make Paper of *Egyptian* Bulrush, which is a Wonder to some, in regard they have so great Plenty of it.

(a) [*At length they found out the way of writing in Wax.*]

As for these waxen Books, we are to understand by them, *Schedæ*, which were Boards or *Tabellæ scētiles*, (not unlike Shingles of Wood, which cover Houses instead of Tiles) which, that they might be fit to write upon, they did not only smooth and plain them, but most exquisitely polish them, and carefully over-spread them

them with Wax, by reason of their hardness, being unfit both to receive Letters, or to blot them out.

(b) [*With an iron Style.*]

They wrote not with *Pen* and *Ink*, but with an Instrument of *Steel* or *Iron*, pointed at one end, and broad and sharp at the other; with the broad end they *scrap'd* out what they had written, whence *Stylum invertere*, is to say and unsay a thing, and to turn his Punch the wrong end downward, as if to obliterate that which one had formerly written.

And as we use this Word [*Manus*] for the writing it self, according to that of *Tully* in his Speech against *Catiline* [*Cognovit Manum & Signum suum*] so in the like Sense we use this Word [*Stylus*] to signify the peculiar *Tenour* and *Strain* of Phrase, which any Man useth in composing an Oration, Epistle, or the like. They say that the *Gracians* or *Thuscans* were the first that made them; the *Romans* afterward us'd, instead of it, an Instrument made of a *Bone*, for they prohibited *iron* ones, as is noted in that Law, [*Ceram Ferro ne Cadito.*]

(c) [*These Tables, &c.*]

Lastly, They wrote their Books on Tables, which had several Names, as *Tabula*, *Tabella*, from their plain Form and Smoothness; *Pugillares*, because *Pungendo scriberemur*; *Codicilli*, a *Candicibus*, properly the Stumps and Stocks of Trees, of which these Tables or Books were made; *Cerati*, waxen, because dawb'd over with Wax. The *Romans* wrote Books in wooden Tables cover'd with Wax, call'd in Latin *Cerata Tabula*.

But

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But we find the Matter of Books not only to be Leaves of Plants, Rinds of Trees, Lead and Linen, Wood and Wax, which hitherto we have spoken of, but also Ivory and Stone, Brass, and Intrails of Beasts, Paper and Parchment.

Ulpian makes mention of Books of *Ivor*, which *Vopiscus* calls *Elephantini*, in these Words [*Ne quis me Græcorum alicui, &c. i. e. Lest any one should think that I have too rashly credited the Greeks or Latins, the Ulpian Library hath an Ivor Book, [Librum Elephantinum] wherein is written the Decree of the Senate, &c.*] 'Tis ridiculous to think they were call'd so from their Bulk and Largeness, as if the Greatness of that Creature was the Occasion of the Name.

As for Books of *Stone*, *Enoch*, the seven from *Adam*, prophecy'd (*vid. Jude's Epistle*) of future Judgments, of a *Deluge* and *Conflagration*, and the better to transmit his *Astronomy* and other Learning to Posterity, and to preserve his Predictions and other Precepts, he wrote them on two *Pillars*, one of *Stone*, and the other of *Brick*, that if one happen'd to perish in a Flood the other might remain. *Josephus* testifies that the former was to be seen in *Syria* in his Time.

Herodotus tells us in his *Urania*, that *Themistocles*, in the time of *Xerxes*, did engrave on Stones, which the *Ionians* carried the next Day to *Artemisium*, did read. *Amblicus* confesseth that he took the *Dogmata* of his occult and mystical Learning from the *Oracles* of *Mercury*, which he said were full of the Learning of the *Assyrians* and *Egyptians*. I forbear to insist on that infinite Number
Mar

Marble Monuments, which are a sufficient Proof of *Books of Stone*. We are not ignorant how the *Danes* took care to have the noble Exploits and Atchievements of their Ancestors (writ in Verse in their own Language) to be engraven and cut in Stone and Rocks: So desirous were they to preserve their Memory, that they made use of huge *Moles* instead of Volumes, and borrow'd the use of Books even from *Shelves* and *Quarries*.

There is no doubt to be made but that the Ancients were wont to write on *Brass*, the use of that Metal being now transferred for the perpetuating of Monuments (as *Pliny* tells us) to *brazen* Tables, whereon were engraven publick Constitutions. And *Tully* (in his *Catiline*) saith, that *Ara legum*, i. e. Laws written in Brass, were struck with Lightning in the Capitol.

'Tis evident that the twelve Tables were engraven in Brass, and that *Vespasianus Augustus* took care for the restoring three thousand Tables of Brass, inscrib'd with publick Memoirs burnt in the Capitol, when he search'd for the *Originals* of which they were the *Transcripts*. We find in the first Decad of the third Book of *Livy*, that a Truce made with the *Latins*, was written on a Pillar of Brass. And we read in the *Maccabees*, that when *Judas Maccabeus* and the People of the *Jews* desir'd a Peace and a Confederacy with the *Romans*, the Senate sent them an Epistle to *Jerusalem*, written in Tables of Brass, about the Ratification of the League of Amity between them, 1 *Maccab.* 8. 14.

We read that one *Talus*, in the time of *Minos* and *Rhadamanthus*, carry'd Tables of Brass about the Island of *Crete*, wherein their Laws

were

were written and engraven; from whence he was called *Arens*. There are many pretty Stories about this *Talus*, which for a little Diversion we shall present you with here. He was made (they say) of Brass by *Vulcan*, and was sent as a Priest to *Minos*, for the Defence of the Island, about which, to watch it, he went thrice a Year. Some say all his Body was of Brass, but a little knob at the bottom of his Heel, that was skin'd over with a thin *Membrane*, which if broken off, he infallibly dy'd. Others say that this *Brazen* Fellow came to *Sardinia* first before he came to *Crete*, where he had destroyed abundance of Men. *Eustathius* on the 20th *Odyss.* saith, that when he intended to kill any body, he leap'd into the Fire, and when he began to be red-hot, he would skip into a Man's Bosom, and immediately burn him. 'Tis probable he was call'd *Eripes*, i. e. Brazen-Foot, because he was most observant of those Laws that were written in that Metal, and carry'd them about the whole Island of *Crete*; just as *Ragnachildu* the Wife of *Theodorick*, King of the *Goths*, was fabled by Antiquity to be one of the Nymphs, and to have Feet like Geese, not that she had really such swimming Claws, but that she wonderfully delighted in Waters and Rivers, and had soft and tender Feet, and those exceeding in Whiteness the Feathers of that Fowl.

We read also in History of Books made of the *Intrails* of Beasts; for in the Reign of *Basiliscus*, there happen'd a great Fire in *Constantinople*, which consum'd the Palace, together with the Library of an hundred and twenty thousand Books; among which there is said to have been the

trails of a Dragon 120 Foot long, on which written in golden Letters the *Iliads* and *Odysseys* of *Homer*, and the History of the Attainments of many Heroes.

(d) [*Paper was found out, &c.*]

we come now to speak of Books made of *Charta*, which differs from *Papyrus*, as the Effect from the material Cause; for *Charta* is made of *Papyrus*, which grows in the Fens of *Italy*, or in the stagnant Waters of the River *Nile*. And this is the way or manner of making it.

The Stalk of this Rush *Papyrus* (the two ends being cut off as unfit for the Business) they divide long-ways into two equal Parts, from which they took several thin Films, which the further they are from the outmost Bark, the better they are, as the nearer the worse; so that there are several sorts of Paper, of which here-

They were wont to separate these Skins or Films from the Stalk, with a sharp Iron about two Fingers broad, a Needle being laid aside as useless in the Business. Of these Skins, or Films, or Sheets (call'd promiscuously by *Pliny*, *Charta*, *Papyrus*, *Tabula*, *Scheda*, *Cutis*, *Plagula*, *Statumina*, *Subtegmina*, *Pagina*, *Tænia*.)

Some of these Films pull'd from the Stalk of the Rush [*Papyrus*] laid one upon another, some in a direct, and others thwartingly and in a transverse Position, Paper was made. Some say that the Filaments were weav'd, the Water of *Nile* being instead of Glue, not the pure and limpid, but the muddy Element thickened and fattened with the clammy Juice of the Earth. This glutinous Paper was beaten with Mallets, and was smoothen'd from Wrinkles with Strokes and Blows;

Blows; and therefore *Ulpian* distinguisheth between *malleatos*, and *non malleatos libros*, i. e. of Books made of Paper that was pounded, and those that were not.

There are eight sorts of Paper mentioned by *Pliny*.

1. *Claudian*, which was made first by *Claudius Caesar*, of *August* or *Hieratick* Paper, only adding thereto a third Film to the two former, and making it eleven Fingers broad.

2. *Hieratick*, from *ιερός*, *sacrum*, i. e. holy, because us'd by the Ancients in religious Volumes. 'Twas afterwards call'd by the flattering Titles of *Augustian* and *Livian*, and from its Authority in Letters, *Epistolary*, and because the Beginnings of *Milvies* are full of Compliments, 'tis call'd by *Martial*, *Salutatory*.

*Marcus amat nostras Antonius, Attice, Musas,
Charta salutatrix si modo vera refert.*
i. e.

" Beloved is my Muse by *Anthony*,

" If the saluting Paper tell no Lye.

3. *Fannian*, so call'd from *Q. Rhemnius Fannius*, a famous Grammarian, who had (as *Suetonius* tells us) whole Shops of Paper to sell. This Blade, by refining at *Rome*, and by making the coarser sort more *angust* and *elegant*, seem'd to have invented a new *Species*, calling it after his own Name.

4. *Amphitheatrical*, which differs from the *Fannian*, as rough Diamonds and Carbuncles differ from Jewels cut and polish'd; and as much as the same Woman newly out of her Bed, with her Hair about her Ears, differs from her self when she hath dress'd her Head, wash'd her
her

Face, and flutters about in her flaming Glo-
 3. 5. *Saitica*, from the Town *Sai*. 6. *Tani-*
za, some say *Tanitica*, from the City *Tani*,
 w *Damiata*. 7. *Emporitica*, *ἐμπόριον*,
 call'd from Merchants, because not fit to be
 written on, it was us'd by them to wrap Wares

8 *Macrocollum*, to call'd from large Films,
 ὁ τὸ μακρὸν καὶ κόλλα, *corium*, i. e. large Pa-
 per or Skin to write upon.

(e) [*A sort of Paper called Membrana.*]

We find the use of these Skins or Films to be
 very ancient; for some understand by *Diphthera*,
 the Skin of the Goat that suckled *Jove*, wherein
 antiquity believ'd he wrote all things he did.
 And therefore those things that are not extant in
 the *Monuments* of History, nor kept and pre-
 serv'd in the *Memory* of Man, are said to be
 borrow'd from *Jove's Diphthera*.

And we read in *Herodotus*, that the *Ionians*
 call'd Books *Diphthera*, because by reason of the
 want of Paper, they us'd the Skins and Hides of
 Sheep and Goats. And some understand by the
 Golden Fleece (which the *Argonauts* brought from
Colchis) *Diphthera*, i. e. a Book (according to the
 ancient way) made of Parchment, containing the
 secrets of Chymistry, which unfolds the Art of
 making Gold, and was justly call'd *Golden*,
 from the vast Emolument brought in by it. It

is evident from the second Chapter of the 12th
 book of *Josephus*, that those *Diphthera*, or Wri-
 ting-Skins of the Ancients, did not differ from
 those Parchments sent by *Attalus* or *Eumenes*
 from *Pergamus*.

(f) [*Paper first found out at Alexandria, &c.*]

Pancirollus had this from *Varro* and *Pliny*, but
 is confuted by *Melchior Guilandius*, in his

Treatise of Paper, who shews that Paper was long in use before that Time.

(g) *Eleazer sent the Septuagint wrote in Parchment to Ptolomy Philadelphus.]*

The Emulation between *Ptolomy* and *Euменes* about their Libraries, was after the Translation of the Scriptures into Greek ; wherefore it was a long time afterward that *Ptolomy* forbade the making of Paper, and so consequently that *Euменes* invented Parchment instead of it ; from whence it is clear that Parchment was long in use before that Contest.

(h) [*At last was found out the way of making Paper with Rags.*]

In regard this Art is so rarely well described by one *John Ruellius*, an expert Physician, and is commonly known to every one almost, especially to those who have seen the Mills made for that purpose : We shall therefore forbear to trouble the Reader with any thing more on the *Argument*, only give us leave to add this one Thing, *viz.*

That the use of Letters or Epistles was utterly unknown to the *Americans* ; for when a *Spaniard* gave a Letter to one of them to be convey'd to his Friend, these miserable Wretches could not imagine how a Paper chequer'd with black and white could *speak*.

A *Spaniard* sent a Dozen of *Indian* Rabbits to his Friend roasted (to prevent tainting) by an *Indian*, who, when he was sharp-set, eat three of them on the Way. At his Return he deliver'd a Letter of Thanks for nine Conies. His Master having perus'd the Paper, accus'd the *Indian* for *embezzling* three. The Fellow deny'd it, and would have stoutly born him down that

that he had carry'd the whole twelve, until his Master had shew'd him the Letter; at the Sight of which, he stood blushing and *sinking*, and confess'd the Truth, and advis'd his Companions to have a special Care of *matling* Papers.

C H A P. XIV.

(i) Of Cyphers, Private Notes, or Characters of Letters.

(k) I Take these Notes and Characters now in use to be altogether new; and for a more just Discourse upon the Nature of them, I think it not improper to reflect a little backward.

The *Lacedamonians* had a more abstruse way of writing than by Notes of Letters; and that kind of Epistle they call'd *σκυτάλιον*, (l) *Scytalum*, i. e. a Staff that they used to write private Letters on, which was done after this manner. There were two round, long and smooth Sticks of an equal length and thickness; one of these was given to the *General* when he went to War, and the other to the *Magistrate* that stay'd at Home. When there was an occasion for secret Communication, they wound once about this Stick a pretty slender Membrane, but long enough for the Business, so as that the Edges of it might meet and join; and athwart the Juncture of those Edges they wrote Letters from the top to the bottom. The written Membrane was roll'd off from the Stick, and sent to the *General*, who was privy to the writing. The rolling off

of the Membrane render'd the Letters *maim'd* and imperfect, and much displac'd both their Heads and Members into a great Confusion; so that if the Membrane had happen'd in the Enemy's Hand, they could have made nothing of it, being not able to gather any thing from the *writing*. But now the Party to whom it was sent, took and wrapt it about its Fellow-stick, so that which he had equal to the other in all respects; so that the Letters meeting together as they did in the former, did most legibly represent a perfect *Epistle*.

This kind of *Missive* the *Roman* General us'd in the same manner; for he gave to the *Senate* a round polish'd *Stick*, and kept another to himself just like it, which he swath'd (as it were) in a long Paper or Parchment, which when roll'd off from the Stick, he dispatch'd to the *Senate*, who winding it about theirs, did read it exactly. But this way of *Epistolizing* made use of no *Notes*, yet you see there was a secret Combination or *Compact* about the interrupting the Position of Letters, so as to render them illegible to a third Person.

One *Tyro*, a Servant formerly of *Cicero*, invented *Notes*, so as that one Letter signify'd a *Preposition* or an *Adverb*. After him *Persannius*, *Philargius*, and *Acilius*, a Servant of *Mecenas*, by the Addition of others, improv'd the Invention of *Tyro*; (*m*) for every particular Letter signify'd a Word; as for Example, *R. P.* stood for *Respublica*, (*n*) *P. R.* for *Populus Romanus*, and so of the rest; but these are rather *Abbreviations* than *Notes*.

(*e*) *Cesar* did so alter and change the Property of Letters, that every fourth one signify'd the first: But (*p*) *Augustus* put the subsequent for

for the *precedent*, as B for A, and D for C, &c. as *Suetonius* and *Dio* inform us. These were Notes or Characters, in regard there were Letters, and those not understood.

Some found out the way of putting Numbers for Letters, as the Figure of 1 for A, the Figure of 2 for B. (q) Others have transpos'd the Alphabet according to their Fancy or Pleasure. (r) And a third sort have found new Characters. Lastly, One of *Brescia* publish'd in *Print* a way of writing, which he thought impossible to be understood, unless a Man had had a *Counter-Copy* of it; but he was deceiv'd, for I have heard his writing *unriddled* and explain'd.

And there are no Notes or Characters so difficult and obscure, but are very intelligible to those who are vers'd and exercis'd in this way of writing, of whom there are several at *Venice*. And I had at home in my House a learned young Gentleman, *Jerome*, the Son of *Francis Nani*, a noble *Venetian*, who was so well skill'd in this Art, that he understood all Characters that were brought to him, though never so hard and abstruse.

The C O M M E N T A R Y.

(i) [Cyphers.]

The Word *Zifera*, *Ziphra*, *Siphra*, or *Cyphra*, (for 'tis written many Ways) is purely *Arabick*, but is not always in the same Sense. It seems to be deriv'd from the Hebrew Word *Saphri*, which (according to *Schindler* in his *Pentaglot*) signifies, 1. To number, and thus we understand by these Cyphers the nine numerary Figures, viz. 1, 2, 3, 4, 5, &c. which are call'd *Sara-*

cenical Cyphers; or, 2. To mark or note, and then we mean by them any Characters or Notes, the Indications or Signs of any Thing, Word, or Letter, which are call'd *Furtiva Literarum Nota*, i. e. Private Characters of Letters, found out on purpose for the writing mystically and obscurely, and then they are styl'd by *Baptista Porta* and others, *Zipheræ*.

Others affirm the Word [*Ziphera*] to be deriv'd from the Arabick *Zaphara*, which signifies *vacuum*, *inane*, as it were a Mark of Nullity or nothing. And taken in this Sense, *Bap. Porta* hath a Volume about them; *Trithemius* also hath a Treatise of *Stenography*, and that abstruse enough, which among several others, *Gustavus Silenius* undertook to interpret. *Blaisius* and *Vigenerius* have publish'd somewhat in *French* on this Subject.

But now new Methods of writing things of moment in these Characters are daily found out and made useful, especially by the *Secretaries* of Princes, as oft as they have a mind to write obscurely, so as not to be understood by every Reader.

This *Cryptick* way of writing was frequent and common in our Civil Wars, there being scarce any Man of Eminency, but in the Communication of Matters of moment, made use of these *Cyphers*, and veil'd his Sense in these mystick Characters, that it might not be understood, in case it fell into the Enemy's Hands. Many such Letters in the War time, were sent to the learned Dr. *Wallis*, Professor of Mathematicks in *Oxford*, to be interpreted by him. They were wrapt up in several abstruse and secret Methods; so that some were so intricate, that he almost

almost despair'd of ever *unfolding* them; yet his indefatigable Industry, attended with a *Sagacity*, and a *dextrous* Faculty that way, did at length *unriddle* them. There are some choice *Specimens* of his excellent *knack* as to that Particular, to be seen in the publick Library of that famous University.

(k) [*I take these Characters or Notes to be new.*]

But in Submission to our Author, we can easily prove, and that by great Authorities, that Antiquity us'd these secret Characters or Notes in writing; for not to insist on the *Egyptian Hieroglyphicks*, we are told by *Ammianus Marcellinus*, that that People were wont to write so, as that every Letter stood for a Word, and every Word signify'd a Sentence. This manner of writing was also in use among the *Greeks*, for we read that *Homer's Iliads* were so curiously writ on a Parchment, that they were easily crowded into the Womb of a *Nut-shell*, and they must needs be written in *Notes* and *Characters*, and those very little, and most exquisitely small. *Myrmecides* is said to have written an *Elegiack Distich* in golden Letters on the least of Seeds, that's call'd *Sesamus*; and therefore 'tis conjectur'd 'twas done by Characters, or these private Notes. The Ancients seldom us'd whole Letters in writing, and therefore *Galen* mentions a Book *ὁλοσηματικῶν*, of *Menecrates* a Physician, which was written in entire Letters. They us'd them in writing their Laws, Edicts and Decrees, as the only Book of *Valerius Probus* will abundantly testify, and also a *Distich* in *Manilius*, in his Book of Astronomy.

*Hic etiam legum Tabulas, & condita jura.
 Novit atque notis levibus pendentia verba.*

i. e.

“ He knew the Laws, and secret Edicts quotes;
 “ And also Words express’d in private Notes.

This compendious way of Writing was also in Use among the *Romans*; for *Dio* tells us, that *Mecenas* was the Author of these *Cyphers*, whereby he wrote apace, and made them Publick by his Servant *Acilius*. This Way of Writing was so Familiar, that *Marcellinus* tells us, that even Girls wrote Letters in these hidden Characters.

Scriveners and Librarians used these Notes, in transcribing the Books of the ancient Lawyers; but when the Knowledge of these *Cyphers*, together with the Study of the Law, and other Learning began to be lost through the Tumult of War; so that the Notes were as hard to be understood, as the Things they expressed, and because many were deceiv’d by the too curious, subtil, and various Interpretations of them, so that great Obscurity did arise thereupon: I say, for these Reasons and Considerations, *Justinian* enacted, that no Law-Books any more should be copied out in them, lest by false Interpretations, and unskilful Explications, the genuine Sense of the Words should be perverted. For if *Justinian* should send to us the ancient Law-Books deform’d and corrupted and *stigmatiz’d* (as it were) with these Notes or Characters, who would be able to unfold their Intricacies, or by explaining their Meaning, could silence and put an end to Cavils and Disputes, when *Trebonian* and himself were

were frequently gravel'd in the unriddling of them. Sometimes he render'd them very ill, giving them a Sense quite different from the true, and sometimes he took *Notes* for *No-Notes*, and sometimes (on the contrary) *No-Notes* for *Notes*.

(l) [*The Lacedemonians used Scytala.*]

The Word signifies a kind of private Epistle, wherein were written mysterious Matters or secret Concerns; a Staff whereon the *Lacedemonians* were wont to write their private Letters. 'Tis describ'd so by *A. Gellius* in the 17th Chapter of his *Attic. Noct.*

(m) [*Every particular Letter signifies a Word, &c.*]

Cicero is supposed by some to have written a Book like a Dictionary, wherein he prefix'd before every Word a several Note or Character, by which it was signified. And there was so great a Plenty of Notes and Words, that whatever could be written in *Latin*, might also be express'd in *Cyphers* or Characters.

(n) [*R. S. stands for Res publica.*]

There were two Ways of this kind of Writing in Use among the *Romans*, the Foot-steps whereof have arriv'd to us, one by Notes, the other by *Sigla*, both which are used either for Expedition or Secrecy. They wrote *per Sigla*, when so many Letters signify'd so many Words: Thus the *Roman* Names and their *Prenomina* were seldom mentioned, but we read *M. T. Cicero* for *Marcus, Tullius, Cicero*, *D.* for *Decius*, *Cn.* for *Cnaeus*, *P.* for *Publius*, *Q.* for *Quintus*, *S. P. D.* for *Salutem, Plurimam, Dicit*, *A. V. C.* for *Anno Urbis Condita, M. S. Memoriae sacrum*. They were call'd *Sigla* q. *Singula*, because *Singulis Literis totidem voces significabant*, i. e. by so

many Letters they signified so many Words, or rather, because they were *Signula*, *Parva signa*, i. e. little Signs; for it is but a small Matter for *n* to be left out in *Sigla*, which is in *Singula*, in regard 'tis a Letter next to *g*, for we say *Singula*, *Sigillatim*, *Lingua*, *Ligula*, *Signum*, *Sigillum*.

Besides these *Sigla*, the *Romans* had Notes or Characters; the Difference between them is this; *Sigla* were *Abbreviations* made by other foreign Characters, whence they were call'd *Notarii* by the *Romans*, who wrote the Speeches of others in short Notes, as *Stenographers* among us, ex. gr. when Letters of the Alphabet are put for *Numbers*, as *C.* for *Centum*, *M.* for *Mille*, this is writing *per Sigla*. But when other Characters are used to express them, such as the *Saracenic* Cyphers, 1, 2, 3, 4, &c. This is writing by Notes.

(o) [*Cæsar* so alter'd and chang'd the Property of Letters, &c.]

As for *Cæsar's* Way of writing his Letters to *C. Oppidus* and *Balbus Cornelius*, who manag'd his Concerns in his Absence, there is an excellent Commentary upon it in *Probus* the Grammarian.

(p) [*Augustus* put the Subsequent for the Antecedent, as *B.* for *A.* &c.]

There is a Letter of his that goeth about, to this effect, written to his Son, viz. Because many Things fall out which both of us are oblig'd as well to conceal as to write, let us therefore contrive such Notes between us, that whatever is written, it may be done so, as that the succeeding Letter may be put for the foregoing, i. e. *B.* for *A.* *C.* for *B.*, and *Z.* for double *A.*

(q) Some

(q) [*Some have transposed the Alphabet.*]-----

How can we otherwise think, but this transposition of Letters (which *Staliger* calls a Cheat and a Phrenzy) is a meer Vanity, and easily to be understood even by every Boy. For by observing the Force and Power of these Characters, which are often repeated, a Man may easily discern how little the changing them will conduce to the darkning of a Writing. For to secure the secret and hidden Sense from being discover'd by the Inquisitive, it matters not whether a *barbarous* Character, or any other Figure is set down or us'd, provided it be known what Language the Paper is written in, and that the Interceptor understands it.

(r) [*A third sort have found out new Characters, &c.*]

This is ascrib'd to *Cicero*: But now, who can be at the Pains, and not be quite tir'd to find out as many Characters as there are Things in Use? And suppose he should, How in a few Days (not to say Hours) will he easily forget his Verbal Index?

To conclude this Chapter, these Cyphers were invented for *Swiftness* in Writing as well as *Secrecy*, that the *Hand* may be as nimble as, nay out-run, the *Thoughts*.

Robertus Vulturius hath spent very much in this occult Way of Writing, in the 17th Chapter of his 7th Book of the *Art Military*. But *Baptista Porta* hath far outstript him as to diligence in the Point, in the 16th Book of his *Natural Magick*, to which we shall refer the Reader rather than transcribe what that Author hath written.

C H A P. XV.

Of Spectacles.

MANY doubt whether the Ancients had *Spectacles* or not, because *Pliny* the most diligent of all Writers, hath not so much as one Word concerning them.

But however, you will find them mention'd by *Plautus*, when he saith [*Vitrum cedo, necesse est conspicio uti*] which cannot be understood of any Thing else, but of those kind of Glasses which are call'd *Spectacles*.

The C O M M E N T A R Y.

(f) [*Spectacles.*]

Conspicilia: Some say, 'tis to be read *Conspicillum*; as *Baculus*, *Bacillus*; *Furcula*, *Furcilla*; so *Speculum*, *Specillum*. Though the Word [*Conspicilium*] used here by our Author, doth commonly denote a Place from whence we may see or have a Prospect of any Thing, as in *Plautus* his *Medic. In conspicio adservabam Pallium*; yet here it signifies an Instrument which magnifies Objects and makes them bigger.

In which Sense that of *Plautus* is to be understood [*Vitrum cedo, &c.*] so that 'tis probable from hence, that they were anciently in Use, as it also may appear from *Ptolomy's* Glass, (mentioned by *Baptista Porta*) by which he saw Ships coming 600 Miles off, and whereby we might discern our Friends for some Miles, and read at a vast Distance the smallest Characters. I suppose *Pancirollus* mentions these among new Inventions

ventions, because he doth not find them in *Classick* Authors.

C H A P. XVI.

Of Saddles, Stirrups, and Horse-shoes.

(t) **A**LL Men believe *Saddles* to be a modern Invention, or at least found out after the *Roman* Empire, in regard we cannot see in any ancient *Statues*, that ever *Horses* had any *Saddles*; no, nor in *Brass*, nor in any emboss'd Works of *Metals* or *Stone*. But though they were not so very ancient, yet we find them in Use in the Time of *Constantine* the Son of *Constantine* the Great, in the Year of our Lord 340. For *Zonaras* tells us, that *Constans* in a Battle with his Brother *Constantine* about the Division of the Empire, rush'd into the middle of his Army, and struck and dismounted him from his Horse and Saddle.

Theodosius Magnus, who began to reign in the Year 382. makes mention also of *Saddles*; for he forbids in a certain Law any Saddle, Bridle, and Portmanteau, to exceed sixty Pounds Weight in Gold, and that under this Penalty, that whoever transgress'd in that Particular, should have his Saddle cut in Pieces, and his Portmanteau forfeited.

There is also mention made of *Saddles* in a Constitution of *Leo* the Emperor, who began to reign in the Year 472, in which Law he forbids the wearing of *Margarites*, *Emeralds*, and other Jewels in their *Bridles*, or *Belts*.

Nicetas in the Life of *Andronicus Comnenus* speaks of one *Theodorus*, who alighted from the Saddle of his Horse, which he calls *ἔσφα*, i. e. the Seat whereon he sat. And *Zonaras* useth the same Word for a Saddle in the Life of *Constantine Monomachus*, so that without all doubt a Saddle was no very ancient Invention.

Neither are we very certain when (u) Stirrups were first brought into Use; but because we find not the least Marks or Foot-steps of them, either in Marbles or Brazen Statues, and their Name is not any where extant; it is therefore no Absurdity to say, they were invented after the *Roman* Empire, so that it was necessary to invent a new Name for a new Thing, such as *Staphia*, *Stapes*, *Stapedes*, i. e. A Place to stay ones Feet on, or a Stay for the Feet.

There are some who would have Horses not to have been shod formerly, because Iron Shoes are not to be seen on their Statues. The Reason of which, I ingenuously confess, I do not know: But I have read that *Poppaa*, *Nero's* Lady, shod her delicate Steeds with Gold, and the rest with Silver. A Thing, I presume, she had never thought of, much less practis'd, had they not before been wont to have been shod.

Nicetas tells us, towards the end of the History, that the *Latins* demolish'd a most excellent Statue of an Horse, consecrated to *Jesus*, the Son of *Nave*, or as some think to *Bellerophon*, and that under the Iron broken off from its Feet, they found the Picture of a Man. And therefore I am apt to believe, that Horses were shod formerly with Iron Shoes.

The C O M M E N T A R Y.

(t) [*All Men look on Saddles to be a new Invention; &c.*]

Pliny saith, that the *Petethronii*, a People of *Theffaly*, or the *Lapithæ* found out *Frænos* and *Strata Equorum* (i. e. Harness for Horses) by which Word *Stratum* they understood *Ephippia*, or Saddles for Horses, but inconsiderately; in regard by that Word, not so much a Saddle is signified, as any Thing else that is thrown upon an Horse; for what ever they spread over a Thing was called *Stragulum*, as the Coverlet of a Bed, and so *Stratum* is an-Horse-cloth, or a Covering for a Horse: Because, neither *Pliny*, nor any other Author of Credit do mention those *Ephippia*, or *Sellas Equestres*, we are apt to think they were not in use among the ancient *Romans*.

Cæsar speaking of the Customs of the ancient *Suevi*, as different from the *Romans*, says, they use no *Ephippia* (by which must be meant, something that answered our Saddles, though perhaps not of the same Shape and Form) and that how few soever they were, they would not fear to fight with any Number of those that used them, *nèque eorum moribus turpins quidquam aut inertius habetur, quam ephippiis uti, ne quemvis numerum ephippiatorum equitum quamvis pauci adire audent.* De bello Gall. Lib. 4. Cap. 2.

(u) [*Stirrups.*]

Without doubt those Helps whereby we mount the Horses, and into which we put our Feet for our more easy and safer Sitting, are but modern Inventions. It is evident from Marbles and Statues, and Triumphal Arches at *Rome*, that the Ancients

Ancients did not use them, neither doth an Name of them occur in any *Greek* or *Latin* Author. They are commonly call'd *Staffæ*, *Staphia* *Stapedes*, a Stay for the Feet, *Cal. Rhodiginus* call them *Subsellares*, because they hung under the Saddle, others call them *Ferra Scansilia*.

That the Ancients were wont to leap upon their Horses without the Help of Stirrups, *Virgil* shews in the 12th Book of his *Aeneids*, and in other Places.

Infranant alii currus, ac corpora saltu

Subjiciunt in equos - —

i. e.

“ Some mount their Horses, others strait prepar
“ Their Chariots ———.

We find in several Authors, that this leaping on Horseback was exactly required not only of *Tyros*, or new raised Soldiers, but also by the Veterans. They had wooden Horses within Doors in Winter, and without in Summer. The *Tyros* at first vaulted upon them naked and unarmed, but upon their Improvement by Practice, they afterwards mounted them with their Weapons in their Hands. Nay, they were to leap up and down as well on the Left-Side as the Right, and that not without their drawn Swords; so that by continual exercise, they could in a trice skip upon their Horses with great Dexterity, even in the midst of the Hurry and Tumult of War, as is evident from *Livy* in the 3d Book of the 2d *Punick* War.

When *Charlemain* had made a certain *Presbyter* a *Bishop*, and seeing him so nimble upon his Advancement, as to leap for Joy upon his Horse

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at a Jump, without Bench or Foot-stool, or any Thing to assist him, he call'd to him and said :

“ I see, Sir, you are Vigorous and Healthy,
“ and by bouncing into your Saddle are a spe-
“ cial Horseman, whose *Briskness* and *Activity*
“ would be serviceable in the Wars, and there-
“ fore I desire you to leave your *Flock*, and to
“ follow the *Army*.

But because this way of leaping on Horse-
back, was pretty difficult and troublesome, espe-
cially to those that were infirm and weak, and
had no Body to mount them : Therefore the
Vicarii, i. e. the Overseers (as we call them) of
the High-Ways, did all along the Road place
certain great Stones, from whence they might
easily bestride their Beasts. *Plutarch* tells us,
that *Caius Gracchus* was not only careful in
paving the High-Ways, but mark'd out Miles
by Stones and Pillars conveniently placed at a
measured Distance, to help poor Travellers to
mount their Palfrys, without that Instrument
made for that Purpose ; for Stirrups were not in
Use.

C H A P. XVII.

Of Squaring the Circle.

(w) *Aristotle* tells us, that there are many
Things knowable, which are not yet known,
because the Way or Manner of them is not un-
derstood ; he gives us an Instance of *Squaring
the Circle*. (x) A Thing, which neither he him-
self, nor any one else, even to this very Age,
could ever do, till about thirty Years ago, when
that Art was found out, big with some won-
derful

derful and mighty Mystery. The *Greeks* call it a *Tetragonism*, which is the (*y*) Reduction of any other Figure to a Circle, which is done after this Manner.

Make a Circle *A. B.* and let the *Diameter* of its *Area* be *A. C.* and 14 Foot long, which Number being trebled, produces 42, to which if you add the 7th Part of the *Diameter*, which is two, there will arise 44, for the *Circumference* of a Circle is three Times and a 7th Part greater than the *Diameter*.

Now the *Circumference* and *Diameter* being known, 'tis easy to find out the *Area*; for if we divide the *Diameter* by half, i.e. by two, there will arise 7, and if we divide the *Circumference* also by 2, there will be produced 22, which last Number multiplied by 7, will give 154, which according to Reason in *Mathematicks* is the *Area* of the Circle.

The Account is this :

The whole Diameter is	14	} 7 the Quotient.
Its Half	2	
The whole Circumference	44	} 22 the Quotient.
Its Half	22	

The two Quotients 22 and 7 multiplied together, constitute the *Area* of the 154---- thus :

$$\begin{array}{r} 22 \\ \times 7 \\ \hline 154 \end{array} \text{ the Area of the Circle.}$$

It now remains that we find out a Square equal to this, which is done after this Manner :

The

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The *Diameter* being divided (as before) into 14 Parts, a Line is to be drawn from the eleventh Part to the *Circumference*, from the Point *D.* to *F.* so that it makes a right *Angle* with the *Diameter*: And then a Line is to be drawn from the last Part of the *Diameter* to the same Point *F.* and there is made a Line *C. F.* and so that *Square* will be equal to the *Circle*; which that you may apprehend to be true, it will be necessary to measure the Length of the *Square* it self, and therefore the Line *C. D.* is to be measur'd, which we said was eleven Foot: That Number multiplied by eleven makes 121, and the Line *D. F.* is to be measured and the Length of it you may thus apprehend.

A Line must be drawn from the Point (the Centre of the Circle) to *F.* and there will be constituted a Triangle *D. E. F.* The Line *E. F.* is equal to the half *Diameter*, which is 7 Foot, the whole being 14. That Number is to be multiplied by 7, from whence will arise 49, from which deduct 16, which is the multiplied Number of the Line *E. D.* which is 4 Foot, which multiply'd make 16; take therefore 16 from 49, and there remains 33, and therefore the Value of the Line *D. F.* will be 33; to which Number join the aforesaid 121, and the Product will be 154. From whence 'tis evident, that the Value of the Line *F.* doth constitute a Square 154, which Number was the *Area* of the Circle.

The C O M M E N T A R Y.

(u) [Aristotle tells us, there are many Things knowable that are not known.]

He instanceth well in the *Quadrature* of a Circle, a Thing which some fancy not as yet known.

known, though perhaps not impossible to be understood. We may well say, that the greatest Part of those Things we know, is not the Tyth of what we know not. And therefore *Casannus* had a Copious Theme, when he wrote a Book of *Learned Ignorance*.

(x) [*A Thing which neither himself nor any one else could ever do, &c.*]

Several great Wits and Mathematical Heads, have been deeply engag'd in this nice Speculation. Among the Ancients before *Aristotle's* Time, *Antiphon* and *Eryso*, *Hippocrates Chios* and *Euclid*, *Archimedes* and *Apollonius*, *Porus* and others, almost crack'd their Noddles in the pervestigation of this curious Theory. Among the Moderns, *Boetius* and *Campanus*, *Casannus* and *Regiomontanus*, *Orontius*, *Fineus*, and several others, have beat their Brains about this subtil Inquiry. If the last of these could have perform'd as much as he promis'd, he had purchased a Wreath of immortal Glory. He is ingeniously confuted by *Petr. Nonius* and *Buteon*, who have accurately demonstrated his vain Attempts, as to that Particular.

Hippocrates, a Merchant of *Chios*, being taken by Pyrates, went on Purpose to *Athens* to prosecute the Rogues, and during his stay there, he fell acquainted with some Philosophers, by whose learned Converse he so improv'd in Geometry, that he aim'd at two Things in that Noble Science, viz. the *squaring* of the Circle, and the *Duplication* of the Tube. As for the *Quadrature* he unhappily miss'd it, but when he had squared a little Half-Moon, he erroneously imagined he had squar'd a Circle by that. But the fore-mention'd *John Buteon* hath shew'd in a little.

little Treatise the Mistakes of *Hippocrates*, and also of all other Demonstrations about this Matter. And *Ramus* in the 1st Book of his *Scholar. Mathemat.* and in the 19th of his *Geometry* hath somewhat extant upon this Subject.

Boetius and *Iamblicus*, the one in his Comment on the Category of *Relation*, and the other in his Paraphrase of the *Ten Pradicaments*, affirm the Invention of the *Tetragonism* we are speaking of, as *Simplicius* informs us in his Notes on the 1st Book of *Aristot. Physicks*. And the same Author tells us, that this *Quadrature* was found out by *Sextus*, *Pythagoras*, and *Archimedes*, by *Apollonius* and *Nicomedes*, by *Cartes* and others: But many deny that there was ever any such Thing, so that the Point in Hand seems very uncertain. And really the fruitless Study of the acutest Mathematicians in all Ages engag'd in the Research of this notable Difficulty or perplex'd Absurdity, hath driven the Learned into a fit of Despair; so that they are quite Hopeless that ever Posterity will be bless'd with so rare an Invention. And yet some think, that the Thing is *possible* and *knowable*, though it is not as yet found out and discover'd.

All that we shall add concerning this intricate and confounding *Problem*, in short is this: That according to the Doctrine of *Aristotle's* School, which holds a *Continuum* to be infinitely divisible, the Thing is desperate and impossible to be done, because a strait Line and a Circle can never be equal, as that *Philosopher* teacheth in the 7th Book of his *Physicks*: But upon the admission of the *Corpuscular Hypothesis*, holding all Things to be made and composed of Atoms,
and

and Lines to consist of indivisible Points; I say, upon the Allowance of this modern Opinion, this Difficulty we are upon, seems not only superable, but very feasible; as *John Schuler*, Professor at *Breda*, ingeniously shews in his *Physiological Exercitations*, to which we refer the curious Reader.

(*y*) [*'Tis the Reduction of any Figure to a Circle, which is done thus.*]

The Knot and Difficulty of this Question, lies in the Proportion which the Diameter and Circumference have to each other. *Pancirollus* industriously explains it in this Chapter, wherein you have set down the Demonstration at large.

And indeed the exact Proportion betwixt these two, being the Ground of the *Quadrature* of a Circle, is a Matter which hath set at Work the great Wits of the World, and yet notwithstanding their painful Disquisition, it lies still in the Dark, and is not discover'd; insomuch, that *Pitiscus* and other eminent Mathematicians, might very well doubt whether it would ever come to light.

Aurantius Vinetus formerly, and *Joseph Scaliger* of late, wrote a Book, wherein he would prove and demonstrate, that he had found out the exact Proportion between the Diameter and Circumference. But he was much deceived, and therefore was confuted by the Professor at *Heidelberg* and by others, who prove it impossible that there should be an exact Proportion betwixt them.

The Invention of this, would conduce much to the clearing up of many Obscurities and cloudy Places in *Aristotle*; and would be of infinite

finite Use in Mathematicks, in Architecture, and in the measuring of all round Bodies, as Globes, Vessels, &c. insomuch, that from the Sight either of their Bottom or Cover, a Man may soon understand the whole Method of framing them from this Doctrine, that shews the Proportion betwixt the Diameter and Circumference; which teacheth us no more than this, (which indeed is the grand Query) how many Times a strait Line drawn through the Centre of a Circle, is contained in the Circumference; or how much a Circular or Circumferential Line is greater than a strait Line drawn through the Centre or Middle of a Circle.

C H A P. XVIII.

Of Mural or Wall-Engines and Guns.

(z) **T**HE Military Instruments called Guns, were found out by a *German* about the Year of our Lord 1378. They were first used by (a) the *Venetians* in an Engagement with the *Genoese* at *Fossa Clodia*, which Place the *Genoese* had a Design to reduce, and to bring under their Yoke without regard to any Conditions of Peace. But being strangely mawled, weaken'd and worsted by these War-like Engines, they were almost all destroy'd.

(b) They were call'd *Bombarda*, from the bombous kind of Noise they make; from hence was found out those *Hand-Guns*, which fir'd by a Match or by the Knack of a *Wheel-Lock*, do shoot Bullets. These are daily in Use, and therefore 'tis needless to insist any longer upon them

them, and also to speak about Gun-Powder made for that Purpose.

(c) The *Latin* Word [*Sclopus*] is deriv'd from the Sound, which breaks out at the firing of them, according to that of *Perfius*.

Nec Sclopo tumidas intendis rumpere buccas.

---- " Nor dost thou strive to fluff

" Thy swelling Cheeks, to break them with a Puff.

Which Verse is to be understood of that Sound which I mention'd, and not of the Noise of Guns, which were not in being at that Time.

The C O M M E N T A R Y.

(z) [*Guns were first invented by a German, &c.*]

All histories do agree in this, that a *German* was Author of this Invention, but whether his Name be known, or whether he was a Monk of *Friburg*, *Constantine Ancklutzen*, or *Bertholdus Swartz* (as some call him) a Monastick too, is not so very certain. 'Tis said he was a Chymist, who sometimes for Medicines kept Powder of Sulphur in a Mortar, which he covered with a Stone. But it happened one Day as he was striking Fire, that a Spark accidentally falling into it, brake out into a Flame, and heav'd up the Stone. The Man being instructed by this Contingency, and having made an Iron Pipe or Tube together with Powder, is said to have invented this Engine: So that Fortune made him the Author of that which he never dream'd of; just as *Diocles the Athenian* was of Musick, by striking with his Stick some earthen Vessels; so true is that of *Aratus* [*That Jupiter teacheth not Men*

Men all Things at once] There are many Things lie concealed which he will discover to Posterity. Nature hath a vast Treasure of Knowledge, which cannot be exhausted in all Ages.

Some ascribe the Invention of Guns to *Archimedes*, at the Siege of *Syracuse* by *Marcellus*; either to defend the Liberty of the Citizens, or to defer and prorogue the Destruction of his Country. We wonder why they do not commend as Founder of them *Demetrius* King of *Macedon*, whose ingenious Contrivance of Military Engines dubb'd him Πολιορκητής; and whose elaborate Machine he batter'd the *Cilicians* with, was so admired by *Lyfimachus*, that for that very Thing he styl'd him *Divine Demetrius*.

Some Writers of the *Indian History* tell us, that *Guns* as well as *Printing* were found out by the *Chinese* many Ages ago. They say also, that they were in Use among the *Moors* long before they were known in *Germany*: But how is it possible or credible, that an Instrument so necessary for the besieged to repel the Attacks of their Enemies, should lie dormant so long? Whereas, as soon as ever the Use of *Guns* was known to the *Venetians*, and *Printing* to the *Romans*, it was presently communicated to other People, so that now nothing is more common throughout the World.

But methinks they are very ridiculous, who make *Salmones* the Founder of this Art of Gunnery from those Verses of *Virgil* in his 6th *Æneid*.

----- *Crudeles dantem Salmoneæ pœnas
 Dum flammæ Jovis, & sonitus imitatur Olympi
 Demens, qui nimbos, & non imitabile fulmen
 Ere & cornipedum cursu simulabat equorum,*

i. e.

Salmonæus, suff'ring cruel Pains, I found,
 For emulating *Jove* : The rattling Sound
 Of mimic Thunder, and the glitt'ring Blaz
 Of pointed Light'nings, and their forky Rays
 Ambitious Fool, with horny Hoofs to pass
 O'er hollow Arches of resounding Brass;
 To rival Thunder in its rapid Course;
 And imitate inimitable Force.

For 'tis clear and evident, from that spark of Poetry that *Salmonæus's* Machine was an harmless Engine, nothing but a Scare-Crow to affright and strike into a Panick Fear; and therefore it no wise to be compared or equal'd to Thunder except in its empty Noise and Fragar.

We may here (not impertinently) for the Diversion of the Reader, draw a Parallel betwixt Guns and Thunder, and compare them together in several Respects, but we pretend not to Exactness in every Particular.

The Report of a Cannon is not only like Thunder in Sound and Fire, in the Blow and Effects, but infinitely excels and goes beyond it. For Thunder sometimes is so kind an Artillery, as to spare Mens Lives; but these barbarous Engines do always Sacrifice them to their horrid Cruelty. Thunder oftentimes with casual Stroke strikes inanimate Creatures, and seldom slaughters a rational Being; but Gun chiefly aim at Man's Destruction.

Besides, many Remedies are prescribed by Authors against Thunder; as Caves in the Earth, and Crowns of Laurel, the Skin of Sea-Calves, and Eagles Feathers, all which are Proof-against Heaven's Arsenal: But no Rampire or Bulwark is impregnable against the Batteries of an Earthly Magazine. If those vain Superstitions are Preservatives against natural, yet they are no *Talismans* against artificial Canons. The Noise of Bells can disperse, rarity, and melt (as it were) the cloudy Barrels of those celestial Mortar-Pieces: But what Violence (I wonder) can break the Force of these terrestrial Granado's? A Peal of Thunder gives but a single Stroke, it picks and choseth, as it were, and aims but at one Mark: But a Volley of Shot gives a numerous Blow, it levels at many, and scatters Fate.

Thunder sends its Harbingers, a Crack, and Lightning, the Fore-runners of its Mischiefs: But Guns give Fire and go off, at the same Instant; they smite and make a Noise, make a Noise and smite, and will at the same Time salute your Ear with a sound, and your Back with a Bullet.

Lastly, there are some cooler Climates and Seasons, as Northern Regions and Winter-Weather, whose too great Rigours extinguish the Heat; and there are hotter Countries and Times, as *Egypt*, and the Summer, whose intense Heat scatters and melts all frigid Vapours; so that there is no collision of Clouds, and consequently no Thunder. But now these metallick Instruments abound every where, and at all Times and Places can produce their dismal and mischievous Effects. And therefore seeing Guns

do not only imitate, but exceed all Thunder, it is impossible *Salmonus* should be the Author of them, in regard the Poet tells us, he did counterfeit inimitable Thunder.

But though Envy cannot rob the *Germans* of this Invention, yet it damns the Author to the lowest Shades. A just Doom pronounc'd against a Fellow born only for the Destruction of Mankind. Certainly, no Humane Wit, but some malicious Fiend, must suggest to Mortals so fatal an Air. It had been no Matter, if (*Perillus-like*) he had handsell'd the Experiment of his ingenious Cruelty.

But though nothing is more mischievous than those pernicious Machines to a beleaguerr'd Fortrefs, yet what is more commodious to a Town besieg'd, whose missile Fire, or fiery Missives beat off the Enemy from attacking their Works? For indeed, what Civility hath Nature done at any Time to any Man, without the unhappy Attendance of some *Discourtesy*? Speak Fire and Water! Ye great Preservers of Humane Life, and ye most barbarous Destroyers of Mankind! But perhaps Heaven hath in Judgment inflicted the Cruelty of this Invention, on purpose to fright Men into Amity and Peace, and into an Abhorrence of the Tumult and Inhumanity of War.

(a) [*First used by the Venetians, &c.*]

About the Year of our Lord 1380. in a Fight against the *Genoese*, who perceiv'd the Destruction made among their Troops, but saw not the Instruments that caus'd it. And since Wars are not wag'd by Laws and Covenants, or civil Compacts, let every one endeavour, ci-
the

Chap. XVIII. Of Wall Engines, &c. 389

ther by Strength or Policy, to kill his Enemy as well as he can.

Some are of Opinion, that Slings, formerly us'd, had greater Force, and did more Execution than Guns; which, though they are very pernicious, yet Experience tells us, are not always victorious; wherefore a certain Captain told the Duke of Savoy: *That he was wont to use his Musket for Shew, and not for Necessity, and that after the first Attack of the Enemy they threw them away, and conquered with their Swords, which were most successful.* Henry IV. of France had Experience of this in several Conflicts, whose Blades were laden with frequent Triumphs.

What said the *Laconian* when wounded with a Dart? *I am not, quoth he, concerned at my Death, but at my Fall by a Wound from a feeble Archer.* For 'tis Satisfaction to the Vanquish'd, to expire by the Hand of Heroick Valour; hence that of *Virgil*:

Aeneas magni dextra cadis -----

“ 'Tis by the Great *Aeneas's* Hand you fall: ”

And because the *Lacedamonians* were wont to grapple with their Swords, 'twas not counted Bravery to kill a Man with a Dart; a Thing that may be done by the silliest Woman.

(b) [*Bombarda.*]

A *Bombo*, which signifies an humming kind of Noise, q. *Bombizatio quadam ardens*; a kind of burning Bombization.

(c) [*Sclopus, &c.*]

There are several Sorts (you see) of these *Bombarda*: *Sclopeti* are those Muskets which the Infantry carry, called by some *Harque Busses*, i. e. *Arcus Bussus*, from *Arcus* a Bow, (whose

Room it supplies in a Battle ; for as Archers were formerly in the Front, (so *Musketeers* are now,) and *Bufo*, which in *Italian* signifies a Hole, because the Fire enters through an Orifice into the Barrel of the Gun, and there kindling the Powder dischargeth the Bullet.

C H A P. XIX.

Of Greek Fire, commonly call'd Wild-Fire.

IN the Reign of *Constantinus Pogonatus* (i. e. of bearded *Constantine*) there was found out (d) an Art to kindle Fire under Water, and this was call'd *Greek Fire*, because the Inventor of it was *Callinicus* a *Greek*, in the Year of our Lord 680. (e) *Constantine* defended himself in a Sea-Fight against the *Saracens* with this Fire, brought from *Constantinople*, as *Zonaras* in his Life informs us.

The C O M M E N T A R Y.

(d) [*An Art to kindle Fire under Water, &c.*]

Though 'twas usual with the Ancients to make Balls, which would be fired with Rain, and which being cast into Rivers, would burn and consume even Bridges and Navies ; and though they call'd these *Greek Fire*, and ascrib'd the Invention to *Marcus Gracchus* ; yet that which we properly call *Greek Fire* is of another Nature ; the Author of which was one *Callinicus*, who flying from *Heliopolis*, taught it the *Roman Emperors*.

'Twas

'Twas done after this manner; they boil'd together the Coals of Willow and Salt, *Aqua-vita* and Sulphur, Pitch and Frankincenſe, Camphire, &c. All which will burn under Water, and any of them will conſume any Subſtance or Matter whatſoever.

(c) [*Conſtantine defended himſelf with it.*]

When a Navy of *Saracens* came up to *Byzantium*, and were repulſ'd from thence, they went to *Cyzicum*, where ſtaying about the ſpace of ſeven Years, they often engag'd at *Byzantium*, until Fire kindled under Water by the Art of *Callinicus*, burnt the Ships of the *Saracens*, ſo that great Numbers being ſlaughter'd, the reſt were forc'd to fly. And by this Device the *Saracens* (doubtleſs) ſuffer'd a greater Loſs than the People of *Syracufe*, when *Archimedes* by his Burning Glaſſes weaken'd their Strength by ſo great a Diſappointment.

Others have made uſe alſo of this *Greek Fire*, among whom chiefly the Emperor *Leo*; for when the *Eastern* People came in an hoſtile manner againſt the City of *Conſtantinople* with a Fleet of 1800 Veſſels, the Emperor directing his Fire-ships againſt them, burnt them all with this kind of Fire.

C H A P. XX.

Of Juſts, Tournaments, or Tilting.

JUSTS or [b] Tournaments, thoſe *ludicrous* Reſentations of a counterfeit War, were firſt
S 4 in

invented by *Manuel Comnenus*, Emperor of *Constantinople*, as *Nicetas* informs us, who wrote to the Year 1214. Before his Time we do not find that that Exercise was in use in the *Roman* Empire; which, as 'tis a Tryal of Strength and Valour, so it is a Sport full of Hazard and Danger, in regard it hath been fatal to several Persons. The Fall of King *Henry* is very famous, and well known in the World.

I my self have seen many who have been mutually the Death of each other; and therefore *Gemes*, the Brother of the Sultan *Selimus*, being ask'd by Pope *Alexander*, after much dry basting, how he liked these sportive *Velitations*, made answer, If this drubbing be in earnest (most holy Father!) it is too little, but if it is in jest, it may be too much.

Nicetas mentions in his third Book, that pompous Tournament exhibited by *Manuel Comnenus* to the Latins at *Antioch*; for when these being about to possess the Holy Land, shew'd their Gallantry in Horsemanship, and at the Lance: *Manuel*, willing to let them see that the *Greeks* were no way inferior, nor would yield to the *Latins*, pitch'd upon a Day for *Juſting* and *Tilting*, but with blunt Spears; and therefore he appear'd in his Imperial Robes, gloriously attended with well-appointed *Greeks*, and dismounting a Brace of *Latins*, he laid them flat on the Ground.

The COMMENTARY.

(b) [*Tournaments.*]

A very late Traveller tells us that he saw at *Bologne*, formerly that Exercise of *Juſting* and *Tilting*, which is still us'd there in Carnival Time.

Time. He deſcribes it thus. The Combatants being mounted on Horſeback, and arm'd *Cap-a-pe*, and adorn'd with huge Plumets of Feathers and Scarfs, with Lances in their Hands, run at one another a full Gallop, one on one ſide, and another on the other ſide, of a low Rail; they aim at one particular Part (I think the Eye) and he that comes the neareſt is the beſt *Juſter*.

This kind of Exerciſe was a perfect Image and Reſemblance of a Duel, which way of contending muſt needs be the Invention of the *Stygian* Tyrant, who is ever embroiling the World in Wars. And therefore (doubtleſs) this manner of *Digladiation* was very ancient; ſuch was the Skirmiſh we read of in the Poet *Horace*.

————— *Quod incidit inter*

Hectora Priamidem, animoſum atq; inter Achilles:
Ira fuit capitalis, ut ultima divideret Mors,
Non aliam ob cauſam, niſi quod virtus in utroque
Summa fuit -----

“ So valiant *Hector*, when he did engage
“ ’Gainſt ſtout *Achilles*, ſuch a deadly Rage
“ Did animate them both, that nothing cou’d
“ Sate their Fury, but each other’s Blood;
“ And Death of one, merely ’cauſe both were
 ſtout,
“ Conquer or dye both could, but ne’er give out.

Thus *Scipio Africanus* is highly celebrated for killing a *Barbarian* in *Spain* in a ſingle Combat. And whoever diſcommended *Alexander* the Great, for tapping the Breſt of *Spithrobates*, the Governour of *Ionia*, with his Spear, when they were engaged in a Duel?

All *Monomachy* is forbidden by the Bulls of the Popes, especially of Pope *Nicholas*, being a Temptation of Heaven, since the innocent Party may, in the justest Quarrel, be basely murder'd, and the most guilty Mischreant may conquer in the Encounter. And therefore what is a Duel, but a furious Redress against the Laws of Nature, a brutal Rage, rather than a Fit of human Madness? But *Frotho*, a *Danish* King, was of another Mind, who publicly enacted, that all Quarrels and Disputes should be decided by the *Sword*; for he thought it more seemly for Men to try their Strength by mutual Blows, than to scold out the Difference in *Billingsgate* Words.

C H A P. XXI.

Of a Quintane.

THE use of a (a) *Quintane* is ancient enough. It was appointed for *Exercise*, and not for *Sport*. The *Romans* made in their Camps four Ways, resembling a Cross, to these they subjoin'd another, which, because it was a fifth, was called *Quintana*, as *Vegetius* informs us. In this Way they (b) fastned in the Earth a great Stake, (c) about which the Soldiers exercis'd, as if it had been a Man. And this Exercise they call'd [*Ad Palum*.] But now our Countrymen have chang'd it from an *Exercise* to a Matter of *Pleasure*, fixing a Stake in the Earth, and cloathing it like a Man, which still retains the Name of a *Quintane*, from *Via Quintana*, wherein the Soldiers were exercis'd.

The

The COMMENTARY.

(a) [*Quintana.*]

So styl'd (it seems) from a Way of that Name: 'Tis call'd also *Exercitatio ad Palum*, and sometimes *Palaria*, which Exercise anciently was a fencing at a Stake or Post fix'd in the Ground, but appearing above it the height of a Man, six Foot; (as *Vegetius* describes it) at which they perform'd all the Points of the Fencer's Art, as with an Enemy, by way of Preparation to a true Fight.

(b) [*Faſten'd a Stake in the Earth, &c.*]

That is, so firmly, as not to shake or totter, and to be higher than a Man about six Foot. The Tyro's, or Fresh-water Soldiers, were wont nigh at hand, to make at this Post with their Clubs or Swords, as if it had been an Enemy; but at a Distance they threw at it, and hit it, and all for a Readiness and a greater Dexterity in a real Battel. But they were very cautious of exposing themselves in attacking the Stake, and were as careful in avoiding as in giving of Blows. Every Tyro had a particular Stake, which he encounter'd as an Enemy, aiming sometimes at the Head, and sometimes at the Face, &c. and making Proffers to hit it sometimes on this side, and sometimes on that, *q. d.* Here I could have you, and there I could have you, with a great deal of Facility, and with the turn of a Hand. *Juvenal* alludes to this Exercise in his 6th Satyr.

----- *Aut quis non videt vulnera palii,
Quem cavat assiduis sudibus scutoque laceſſit;
Atque omnes implet numeros?* ----- i. e.

" Who

“ Who knows and sees not how with Spear
and Shield,

“ The wounded Post is charg’d by Maids at
Arms,

“ And rarely-well-train’d Matrons, whose
Alarms -----

(c) [*About which the Soldiers exercis’d.*]

Military Discipline (like other Arts) is improved by Use, and loseth its Vigour by nothing more than by Sloth and Luxury: Let Soldiers do any thing, rather than lie melting in Idleness and Pleasures; Valour will rust, unless furnish’d up with a brisk Adversary, and Courage languish, unless quickned and reviv’d by sharp Encounters.

Softness and Ease are the very Bane of Nations; and therefore when some cry’d out, *That the Roman Affairs were safe and happy, through the Fall and Reduction of the Carthaginians and Gracians.* Scipio Nasica made answer, *We are now in the greatest Jeopardy and Danger, in regard we have no body either to fear or revere.* It was a deserv’d Encomium which *Emilius Probus* gave of *Iphicrates*. viz. *That no Men in Greece had an Army better disciplin’d than he had.* And King *Philip* advanc’d and ennobled (as it were) the Meanness of *Macedon* into its Majesty and Grandeur, by no other Means than a frequent and diligent training of his Soldiers.

The Romans had their *Campi-Doctores*, i. e. Instructors of their Warriours in the Art of Fighting, teaching them how curiously to make, and to avoid a Pass, and how, either at *Sharps* or *Foins* dextrously to hit a Man. Their *Tyro’s* or *Novices* were train’d also in running and leap-
ing

ing, and were not only shew'd and learn'd how to shoot, but to manage a Horse, and to pass Rivers, to scale Walls, and to climb Works, to keep their Ranks, and to wheel about, and to do many other Feats relating to War and Martial Affairs; and all this they acted (as we do at our Musters) in counterfeit Skirmishes, and in the Shew of a Battel; according to that of *Virgil* in the seventh Book of his *Æneids*.

*Ante urbem Pueri primævo flore juventus
Exercentur equis, domitanique in pulvere currus,
Aut acres tendunt arcus, aut lenta lacertis
Spicula contorquent, cursuque ietnque lacesunt.*

i. e.

- " Without the Gate,
" They see the Boys and Latian Youth debate
" The Martial Prizes on the dusty Plain;
" Some drive the Cars, and some the Coursers
rein:
" Some bend the stubborn Bow for Victory,
" And some with Darts their active Sinews try.

The Soldiers also learn'd how to carry their Arms and Baggage in a March, to which *Virgil* alludes in the third Book of his *Georgicks*.

*Non secus ac patriis acẽ Romanus in armis,
Injusto sub fasce viam cum carpit & hostem
Ante expectatum positus stat in agmine castris.*

i. e.

- " Thus, under heavy Arms, the Youth of Rome,
" Their long laborious Marches overcome;
" Clearly their tedious Travels undergo,
" And pitch their sudden Camp before the Foe.

A Target and a Sword, a Bow and an Helmet, are no more Burden to a good Soldier than his Arms and Shoulders; for his Weapons are his Limbs, which he carries so dextrously, that upon an Occasion he can use them as readily as he can his Joints.

C H A P. XXII.

Of Mills.

T. Rocopius tells us that *Belisarius*, *Justinian's* General, being besieg'd by the *Goths* at *Rome*, found out the way of grinding Corn by (d) *Mills* mov'd by Water.

Pliny, in the tenth Chapter of his eighteenth Book, makes mention of Wheels turn'd by the Current of Water; but I suppose that Use was discontinu'd and laid aside, and afterward was reviv'd again by *Belisarius*.

The C O M M E N T A R Y.

(d) [*Mills.*]

Mola, in Latin *a molendo*, from grinding, or (as some think) *a molliendo*, from softning, because whatever is cast into 'em is mollify'd by them. Those that are turn'd about with Water, are call'd Water-Mills, which, whether they were known to the old *Romans* or not, is a Question. Some are of Opinion that they were not in use among the Ancients, because they burnt their Grain, and pounded it in Mortars; hence that of *Virgil* in the first of his *Aeneids*.

----- *Frugesque receptas,
Et torrere parant flammis, & frangere saxo.*
 “ Some dry their Corn infected with the Brine,
 “ Then pound with Pebbles, and prepare to dine.

They first dry'd their moist Corn, and then cast it into a Mortar, and so beat it; and they were call'd *Pinfores* formerly, who are now call'd *Pistores*. So we find that *Jove*, à *Pinfendo*, was call'd *Pistor*; for when the *Gauls* besieg'd the Capitol, an Altar was erected to *Jupiter Pistor*, because he advis'd the *Roman* Deities to make Bread of all they had, and to throw it into the Enemy's Camp; which when it was done, the Siege was rais'd, the *Gauls* utterly despairing of starving and subduing the *Romans* by Want. Thus in like manner those Festival Holy-days, which were appointed for burning their Corn, were call'd *Fornicalia*, because the Sacrifice was perform'd *ad Fornicem*, which was in the grinding or Bake-house.

Afterward Mills, or *Versatile*, or *Trusatile* Engines were found out, which were turn'd about either by Men or Beasts, but with very great Toil and Labour.

And hence it is that *Pistrinum* (à *Pinfendo*, from pounding, for before the use of Mills they pounded their Corn in Mortars, the Place where they did it being call'd *Pistrinam*) is put for a Place of Work, a *Little-Ease*, an House of Correction or *Bridewel*; for criminal Servants were condemn'd *ad Pistrina*, to the Mill-house, and were doom'd to the perpetual Servitude of turning a Mill.

We

We find also that after the manner of those *Fornicalia*, certain *Vestal* Rites were instituted, which were solemniz'd with Feasts; at which Meat was sent by the Citizens to the *Vestal* Virgins, to be offer'd to the Goddess *Vesta*, and crown'd Asses, carrying (as it were) Bracelets of Bread, were led about the City; nay, the very *Mills* were adorn'd with Flowers and Garlands, and stood still. The reason of which Ceremonies we find in *Ovid* to be, that having no Mills, they were wont to burn their Corn in Ovens by the help of *Vesta*, i. e. Fire. And hence it is, that Fire, or *Domina Focorum*, i. e. *Vesta*, were worshipp'd by Bakers, and that Asses, which by reason of Fire, or through the help of *Vesta*, were excus'd from the *Mills*, and being at leisure, kept Holy-day. And the same Author tells us, that the reason why Asses were crown'd, and had Collars of Bread about their Necks, was because *Vesta* being rowz'd from Sleep by the braying of *Silenus*'s Ass, escap'd the Snares and Lust of *Priapus*.

But notwithstanding all this, *Procopius* tells us that Mills were made at *Rome* on the *Tyber* to grind withal, because (he saith) there was a great quantity of Water, which running into a Creek, rush'd with Violence through the Channel, wherefore the ancient *Romans* seem'd to compass the Hill *Janiculus* with a Wall, to prevent a Passage at the Mills for the Enemy; so that 'tis probable from hence there was the use of Water-mills, but it might be laid aside (as *Pancirollus* saith) for a Time, and afterward be reviv'd and introduc'd again.

The occasion of the Invention of *Mills*, may be taken (I suppose) from those natural ones,
which

which every one carries in his Mouth; for who is not dextrous at the bruising of a Crust by vertue of his *Grinders*, unless some toothless old Grandame, who being forc'd to make *Mill-stones* of her Gums, can only mumble the *Grist* of a little soft Pudding. Some body (doubtless) observing the Attrition of his Teeth, laid one rough Stone upon another, which rubbing together, crush'd the Grain into Dust and Powder.

C H A P. XXIII.

Of Hawking.

THEY were wont formerly to go a *Fowling* with Nets, and not with rapacious *Animals*, such as Hawks, Falcons, and the like; a Thing which was altogether unknown to the Ancients, as *Jovius Blondinus* writes in the second Book of his History of *Muscovy*. *Frederick Barbarossa*, when he besieg'd *Rome*, is thought to have invented this way of Hawking, which 'tis most profitable, to 'tis also now most in use.

The C O M M E N T A R Y.

Hawking was utterly *unknown* to the Ancients, being very *rarely*, if ever, mention'd by any ancient Author. But here we must understand very hoary Antiquity, otherwise we find in History, and it appears by *Julius Firmicus*, Book 5. Chap. 2. that it was known 1200 Years since, where mention is made of Breeders and Feeders of Hawks, of Falconers and Falcons, and other Fowling Birds.

There

There have been many who have written on this Art, as *Frederick*, the second, Emperor of Germany, the Son of *Henry*, and Nephew to *Frederick Barbarossa*, hath written two Book of *Falconry*, singular Monuments of his excellent Learning. They were publish'd at *Ausburg*, from his own Manuscript, and were kept in the Library there; from whence *Joachim Camerarius*, a Physician, took it and printed it at *Norimberg*, together with *Albertus Magnus's* Treatise of Hawks and Falcons, which he annex'd to it.

Budæus also hath written a large Discourse of Hunting and Hawking, part whereof is annex'd to the latter end of *Hen. Estienne's* French and Latin Dictionary; in Italian, *Oliva*; in English, *Markham*, *Latham* and *Turbevil*, whom Mr. *Ray* hath epitomiz'd.

C H A P. XXIV.

Of Woven Silks, or Silken Webs.

(c) Silk was formerly brought from the People call'd *Seres*, whose Country is now nam'd *China*. *Procopius* tells us, that in the Reign of *Justinian*, about the Year of our Lord 550, (c) certain Monks brought Silk-worms from *Constantinople*, and from thence began the Art of making those Webs in *Europe*.

About 50 Years ago, there was such Plenty of them in the *Venetian* Territory, that they got yearly by them 500000 Crowns, and my Country (which is *Rhezzo*) 100000, and *Sicily* a great deal more; so that, in a word, this Art or Manufacture, was the only Nerve and Sinew (as it were) of the Merchants Gain, and the surest Sup-

Support to those that were Operators and wrought in it.

There are Silks made now a days altogether unknown to the Ancients, such as *Ungulata*, which because invented at *Damascus*, are call'd *Damascena*, Damasks; *Holoserica villosa*, Velvet, so called from its Roughness like Hair, which the Latins call *Villi*; *Rasa*, *semirasa*, perhaps Sattin; *Ormesina*, from *Ormus*, an Isle in the *Persian* Gulph, and several other Sorts, a Catalogue whereof would perhaps seem tedious.

I suppose most of these were unknown to the Ancients, and for want of Silk-worms were not made by them. *Lampridius* tells us, that *Alexander Severus* never wore any Garment of Velvet, which we now see daily tatter'd into Jags, even by the meaner sort. And *Vopiscus* writes, that *Aurelian* had never any Vestment of clean Silk, neither would he suffer any Man to wear them, or to have them in their Wardrobes. Nay, when his Wife ask'd him leave to wear a Gown of Purple Silk, he made her this Answer, That he would never suffer Thread to be weigh'd against Gold for at that time a Pound of Silk was repay'd again in a Pound of that Metal.

THE COMMENTARY.

(c) [*Silk was brought from China.*]

Because they were famous for kemberg silken Fleeces made of Leaves by Worms, according to that of *Virgil* in the second Book of his *Georg*.

*Quid nemora Aethiopum molli canentia lana,
Velleraque ut foliis depectant tennia. Seres. i. c.*

"The

“ The green *Egyptian* Thorn, for Med’cine good,
 “ With *Ethiop*’s hoary Trees and woolly Wood,
 “ Let others tell ; and how the *Seres* spin
 “ Their fleecy Forests in a slender Twine.

i.e. By the working of Silk-Worms. In *Taprobane*, Silk made by Worms is gather’d from Trees ; but in *China* ’tis so plentiful, that Silks are as common there, as the cheapest kind of Linen is here among us.

Silken Garments, now call’d *Serice*, from the People *Seres*, were formerly call’d *Medica* ; because (I presume) they were brought from the *Medes* and *Persians*, until the Emperor *Justinian* sent an Ambassador to the King of *Aethiopia* to assist him against the *Persians*, to the end that the *Aethiopians* might enrich themselves by trafficking in *Indian* Silk, and by sending it to *Rome*.

(f) [*Certain Monks brought Silk-Worms to Constantinople.*]

So that then there was great Increase of this Commodity in *Europe*, after that these Persons had brought a Seminary to *Byzantium*, and declar’d its Original, how these Worms proceed from little Eggs, and are nourish’d by Mulberry Leafs.

[*Most of these kinds of Silks were unknown to the Ancients for want of Silk-worms.*]

Galen speaks of the Rarity of Silk in his Time, how it was only to be found at *Rome*, and that only among the rich, and the better Sort. This Scarcity is ascrib’d to the Want of Mulberry-Trees, which is the usual Food that that Insect feeds on.

C H A P. XXV.
Of Botargo and Caviare.

IT remains now that we say somewhat of some Things relating to eating and the Palate, and to oppose those Liquids of *Botargo* and *Caviare*, to the *Garum* and *Muria* of the Ancients, which, though unworthy the Cognizance of your Gravity and Highness, yet it may not be improper, for the Advancement of our Knowledge, to consider a little as well as the former.

Botargo is made of the Eggs of the Fish *Cephalus* (which the Latins call *Mugil*, i. e. a Mullet) mingled with Salt, and the Blood of the same Fish. 'Tis call'd corruptly by the Moderns, *Botarcha*, q. d. *Botáquina*, that is, *Ova salita*, salted Eggs. They are in so great Esteem, that a Pair of them was sold at *Venice* for four Crowns.

In the next place after these, *Caviare* is the Chief or Principal of all Salts or Pickles. It is made of the Eggs of Sturgeon, about the Shore of the *Euxine* Sea, which being well beaten and condens'd together, are pickled and barrell'd up in Casks or Hogsheds.

The *Pulpa* also of Sturgeon it self are pickled, of which is made a kind of Flesh call'd *Spina*, or *Dorsum*, of the Fen *Mæotis*. 'Tis call'd now a days *Zabach*.

They us'd also to pickle a Fish call'd *Morona*, of which now we have no knowledge, but its Flesh is brought from the *Danish* Ocean. There
are

are brought also other Salt Fish (call'd *Herrings*) which are hardned and dry'd by the Sun in *Norway* and *Sweden*; as also the Fishes call'd *Mar-luci*, which for Hardness may be compar'd to Wood. I suppose none of these Fishes were in use among the Ancients.

The C O M M E N T A R Y.

[*The Garum and Muria of the Ancients.*]

If Curiosity desires any further Acquaintance with these kind of Viands, whose Successors are *Botargo* and *Caviare*, he may consult the 19th Chapter of the third Book of *Langius's* Epistles, and also *Dioscorides*, who mentions several sorts of it, and tells us how to make it, in the thirty first Chapter of his second Book *De Re Medica*.

Garum was made of the Intrails of a certain kind of Fish, chiefly of Mackarel, after this manner: The Bowels of this Fish, after they were sprinkled with Salt and their own Blood, were put up into an earthen Vessel, where they lay wasting and corrupting for the most part about two Months; then an Hole being made in the bottom of the Vessel, they distill'd that Liquor into another Pot set underneath to receive it.

And this Juice was of so great a value, that none other Liquids, except perfum'd Ointments, were more highly esteem'd. Hence 'twas dignify'd with a proud Title, and call'd *Garum Sociorum*, because not allow'd to be transported to any but the Allies of the Romans. For *Apicius* (that Virtuoso in Luxury) saith that *Barbels* were most exquisite Delicacies, being kill'd in *Sociorum Caro*.

As

As *Garrum* was a Liqueur made of corrupted *Mackarel*, so *Muria* was made of putrify'd *Tunny*. This was the *Dish* of the Poor, and that of the *Rich*, and therefore 'twas call'd *prond* and *precious*.

The AUTHOR's Conclusion.

THESE are: (Most Serene Prince !) the Things and the Arts, the Manners and Customs, which I thought good to treat of ; by shewing Your Highness, how that some Things formerly have been on the *Stage*, and have disappear'd ; and how that others, invisible and behind the *Curtain*, have expos'd themselves to publick View. Some have vanish'd and withdrawn from the World, and others have sprung up afresh in their room ; that from hence we may see the *Majesty* of Nature, and the many excellent *Arcana* and choice *Secrets* that are treasur'd in her Bosom.

Those of less Moment I have designedly omitted, as unworthy your Cognizance. If I have not pleas'd your Excellency with these, yet I hope you will accept the *Sincerity* of my Heart, and my Readiness to serve you. To whose Honour and Dignity, I devote my self with the profoundest *Reverence* and most humble *Submission*.

A D-

A D D E N D A to the Account of Invention of P R I N T I N G

THE following Account is taken of *Cornelius a Beughem's Incunabula Typogr* a Catalogue of all the printed Books in Language, from the first Invention of Print to the Year 1500. Out of which we have collected every first Book which we find printed at *Alberville, Aloft, Antwerp*, and other Places, which we have disposed in an Alphabetical Order, that the curious Reader may soon find himself in this Point of Antiquity, and see quickly it spread throughout *Europe*. We have given all that we could find printed in Time at *Westminster* and *Oxon*, as more necessary concerning our selves. And think fit to transcribe *Beughem's* entire Account of the old Editions of the Holy Scriptures, which we print by it self, and in the first Place as he has done.

- Bible in Hebrew*, Fol. & 4to. most correct, 1
- *Latin*, *Mentz* 1
- *Faufus* and *Schaffer's* Edition at *M*
- 20. *Salmour* affirms in his Notes upon *Panciro*
- but *Saubers* says, he could never see it, 1
- St. Jerom's Latin Bible*. Fol. 2 Vol. *Mentz* 1
- *Vulgar Latin*, *Reutling* 1
- *Vulgar Latin*, *Noriberg* 1
- Same again, *Ibid.* 1

Several Editions of St. *Jerom's* and *Vulgar Latin Bibles* at *Ausburg*, 1466. *Venice*, 1476. *Noriberg*, 1479, & 1484. *Basil*, 1485, 1487, 1491, 1495.

----- With *Lyra's Commentary*, *Rome*, 1472. 5 Vol. *Colon*, 1478, 1480, 7 Vol. Fol. with *Peter Mollenbeck's Table*, at *Basil* 1498.

----- In *Dutch*, at *Delf*, 1477. Fol. at *Gonde*, 1479. Fol.

----- In *German* with wooden Cuts, *Noriberg*, 1483.

----- In *German*, translated from the *Vulgar Latin*, *Ausburg* 1494.

I have seen this last Date Written 1449. but I look upon it to be a Mistake. These are all the Editions of the Bible I have ever seen.

- - - - - A.

Abbeville in Picardy. Abbeville 1486. S. Augustin. de Civitate Dei; Gallice, Fol.

Oudenard. Aldenard 1480. Sermones Hermani de Petra in Orationem Dominicam.

Alost in Flanders. Alost 1487. D. Chrysostomus, De Providentia. De dignitate humane Originis. Lat.

Amberg in Bavaria. Amberg 1471. M. T. Ciceronis Orationes omnes, Fol.

Antwerp. Antwerp 1487. Fr. Philéphi Epistolæ, 4to.

Aquila in the Kingdom of Naples. Aquila 1482. Plutarch's Lives in Italian, by J. B. Jaconellus, Fol.

Rimini, a City in the Papacy. Rimini 1486. R. Joseph Albos Arbor Plantata, Heb. 4to.

Ausburg. Augustæ Vind. 1471. J. Bocca
Historiæ de claris mulieribus, Germanice.

B.

Banberg in Franconia in Germany. Bamber
1499. Ereviarium Romanum.

Barcelona. Barcellona 1494. Consolat.
martyrio.

Bolduc in Brabant. Boladucis 1487. XX. Pr
cepta elegantiarum Grammaticalium.

Basil. Basileæ 1475. R. Carochus de Lic
Sermones Quadragesimales.

Bergamo in Italy. Bergami 1498. Chirurg
Scriptores varii, sc. Guida, Brunus, &c. 6

Bolen in Picardy. Bolonæ 1473. Le Episto
Lettioni & Evangelii de tutto l'anno.

Bologna in the Papacy. Bononiæ 1471. R. Ot
dia Sephorno, Lux populorum.

Bresse in the Common-wealth of Venice. Bria
1482. Gerard. Odo in Ethicam Aristotelis.

Bruges in Flanders. Brugis 1476. Boccace,
Ruine des Nobles Hommes & Femmes.

Brussels. Bruxellis 1478. Egid. Casterii Sac
ta Fragmentorum, Fgl. 2 Vol.

C.

Colle. Collæ 1471. Oppiani Halientic
Lat.

Cologn. Colonia 1471. Rudolphi Agnico
Lucubrationes quædam, 4to.

Cremona in Milan. Cremonæ 1497. Syl
ber Prietas. Compendium seu Additiones in]
annem Capreolum.

Caster

of
 Cosenza in the Ki of Cusen-
 tiz 1478. Discours d. a. 15. Dicu,
 4to.

D.

Deventre in Over-Yssel, Daventriz 1457. Hi-
 storia de B. Virginis Mariæ Assumptione, 4to.
 Delf in Holland. Delphis 1480. Sancti Ber-
 nardi Posillæ majores, Fol.

E.

Erfurt in upper Saxony. Erfurti 1482. Luterus,
 De Anima.

Essling in the Circle of Soabia in Germany.
 Esslingz 1475. Petrus Niger. Tractatus de Judæo-
 rum perfidia.

Eychstad. Eystedii 1488. Obsequiale sive
 Benedictionale Eysterense.

F.

Ferrara in the Papay. Ferrariæ 1474. Bonus
 Accursius. Animadversiones in Cæsar's Com-
 mentaria, 4to.

Florence. Florentiæ 1477. Alphonsi Quæstio-
 nes in Aristotelis libros de Anima.

Friburg in Suabia in Germany. Friburgiæ 1494.
 Aug. de Civ. Dei cum Comment. Tho. Valois,
 & N. Trivet. Fol.

G.

Gaeta in Italy. Gaetæ 1488. S. Gregorii Dia-
 logi, cum vita ejus, Italice.

412 *Addenda to the Account*

Ghent *in Flanders*. Gandavi 1483. Guillermini Rhetorica Divina, 4to.

Geneva. Genevæ 1482. Le Livre d'Olivier de Castille & Artus d'Algarlee, Fol.

Genoa. Genuæ 1471. Virgilii Æneides in Prosa Italica, 4to.

Geniæ 1480. Johannes Annius de futuris Triumphis contra Saracenos.

Goude *in Holland*. Goudæ 1480. Gerard de Leeu. Gesta Romanorum moralizata.

H.

Hagenau *on the upper Rhine*. Hagenor 1489. Joan. de Gurlandria Cornutus, sive disticha hexametra moralia.

Hamburgh. Hamburgi 1491. Laudes Mariæ Virginis, Fol. maj.

Harlem 1441. Spiegel onser behoudenisse. Domatus Gram. 1440.

Hasselt. Hasselti 1481. Recollectorium ex gestis Romanorum, Fol.

Heidelberg. Heidelbergæ 1480. Jodocus Galus. Opusculum, nosce teipsum inscriptum.

Sevil. Hispali 1491. Alphonfi Tostati Opera.

I.

Ingolstadt *in lower Bavaria*. Ingolstadii 1492. Porphyrii Isagoge.

L.

Leipsick. Lipsiæ 1474. Balthasar de Lipsia. Conclusiones 39 contra J. Huss, De Sacramento.

Lovain

of the Invention of Printing. 413

Lovain. Lovanii 1474. Petrus de Crescentiis,
De Agricultura, Fol.

London 1481. Joan. Valdesius super Psalterium.
Lubeck in Holstein. Lubeccæ 1475. Chroni-
con. &c. Tit. Rudimentorum Novitiorum.

Lyons. Lugduni 1477. Vinc. Ferrarii Ser-
mones de Sanctis, Gallice, Fol.

M.

Mantua. Mantuæ 1473. Pet. de Abano. Tra-
ctatus de venenis, 4to.

Memmingen in Suabia. Memmingæ 1484.
Antonini Archiep. Confessionale.

Mentz, Moguntia 1459. Durandi Rationale
Divinorum Officiorum.

Messines in Sicily. Messinæ 1486. Historia
præliorum Alexandri Magni, Fol.

Milan. Mediolani 1469. Aratoris Cardina-
lis Sacra Poesis, Fol.

Mirandola in Italy. Mirandulæ 1496. D.
Cypriani Carmen de Ligno Crucis.

Modena. Mutinæ 1487. Cassandra Venetæ
oratio pro Betrutio Lamberto.

N.

Naples. Neapoli 1472. Andr. de Isernia Com-
mentarii super Constitutiones Siciliæ, Fol.

Norimberg in Franconia. Norimbergæ 1479.
Rob. Cirocholus De Licio, De hominis Forma-
tione.

O.

Oxford. Oxoniæ 1479. Egidius de Roma,
De peccato Originali, 4to.

P.

Padua. Patavii 1482. Pet. de Abano in Problemata Aristotelis.

Pavia *in the Duchy of Milan.* Papiæ 1473. Paris de Puteo, De Syndicatu.

Paris. 1463. L'Art de Rhétorique pour faire Hymnes, &c. Fol.

Parma. Parmæ 470. Plin. Historia Naturalis, Fol.

Pescia. Piscia 1489. p. 120. Laurent. de Rudolphis, Repetitiones & Disputationes Juris.

R.

Ratisbon. Ratisbonæ 1471. Servii Comment. in Virgilium, Fol.

Reggio *in the Kingdom of Naples.* Regii Lepidi 1481. Propertii Elegiarum Lib. IV.

Reutlingen *in Suabia.* Reutlingæ 1473. Pet. Comestor. Historiæ Sacræ libri 16. al. Historia Scholastica, Fol.

Roan *in Normandy* 1488. Le Roman du Roy Artus, Fol.

Rome. Romæ 1467. Joan. de turre cremata, Meditationes in figuras Romæ in Templo B. Mariæ de Minerva, Fol.

Rostoch *in lower Saxony.* Rostochii 1476. Laurentii Opera.

S.

Siena *in Tuscany.* Senis 1489. Clausula Epistolæ Ciceronis.

Spire *on the upper* I Spire 1471. D. Cy-
priani Epistolæ, Fol.

Strasburgh. Argent. 1464. Hugo de S. Vi-
ctore, De Sacramentis, Fol.

Swoll *in Over-Yffel.* Swollæ 1479. S. Bona-
venturæ Sermones de Sanctis, Fol.

Soubige. Sublaci 1465. Lactantij Divinarum
Institutionum Libri VII. Fol.

T.

Trevifo *in Italy.* Tarvisii 1467. Fra. Coltan-
na, sub nomine Polyphili, Hypnerotomachia,
Fol.

Salonichi *in Macedonia.* Thessalonice 1493.
R. If. Abarbanel Comm. in Prophetas priores,
scil. Josuah, &c. Heb. Fol.

Toledo. Toleti 1486. Confutatorium Erro-
rum contra Claves Ecclesiæ editorum.

Tubingen *in Suabia.* Tubingæ 1494. Contra-
dus Summerhart, De Messia.

V.

St. Albans. Villa S. Albani 1480. Laur.
Guil. de Saona, Rhetorica.

Venice. Venetis 1465. Joan. de Karthan,
Fasciculus Medicinæ.

Verona. Veronæ 1468. Plinii Historia Natu-
ralis, Fol.

Vienna. Viennæ 1461. Oratio Panegyrica
Theodosio Imp. dicta, 4to.

Vicenza *in the Common-wealth of Venice.* Vi-
centiæ 1476. Omnibonus Leonicensus. Comm.
in Cic. de Oratore, Fol.

416 *Addenda to the Account, &c.*

Ulm in Suabia. Ulmæ 1473. Chronicon
niversale, Germanice, Fol.

Utrecht. Utrechtii 1473. Historia Sch
lica de vita Christi & Apostolorum, Fol.

W.

Westminster. 1480. *Mirour or Image of
World.*

Nic. Upton's *Book of Heraldry*, Anno 1490

Virgil's *Æneids out of French into Eng
lish*, 1490.

*Directions for keeping the Feasts of the y
ear*, 1483.

History of England and Ireland, 1480.





THE
P R E F A C E
TO THE
A P P E N D I X
TO
P A N C I R O L L U S .

THE ingenious Author of the foregoing Work lived in an Age which afforded him a double Prospect; the One backward, when Ignorance and Darknes overwhelmed all Nations, and Learning was at so low an Ebb, that scarce so much as the Knowledge of the Latin Tongue was any where to be found: The Other forward, when Learning began to revive, and Arts and Sciences to be enquired after. The Times of Ignorance he hath fully described, and shewed in many Instances the Losses sustained by it; but Learning

418 The PREFACE, &c.

and Knowledge were in Embryo only in his Time, and so he could give us but little or no Account of any Improvements made in it. Had he lived to see the great Progress in Letters and Arts made in these later Times, no doubt he would have been as copious in describing the Restoration of them, as he has been in representing the Loss. To repair therefore this Defect in Panscirollus, and give this Age the just Encomium of their Ingenuity and Diligence, the Reader is here presented with a short Specimen of Things invented, and improved in these later Ages, added by way of Appendix; which, as it will in some measure compleat the Author's Design, so will ('tis hoped) be profitable and grateful to him.

Note, these Extracts are truly taken from Bp. Sprat's History of the Royal Society, which is made use of throughout; The Honourable Esq; Boyle's Pieces: The Philosophical Transactions; the Memoire of the French Royal Academy, &c.



A N
APPENDIX
 TO
PANCIROLLUS;

Containing a short Attempt to make
 good his third Proposal in his Pre-
 face.

N I E.

A Collection of some Modern Arts, and new
 Inventions, recommended to the World in
 these later Ages.

IF according to *Pancirellus's* I
 make a just Estimate of our La
 represented them in the foregoi DOU in or-
 der to compare them with xern n is,
 and judge whether we are Cai or L s
 the Main, it will be requisite to a ist
 first place, such a Fondness for A jury, to
 prefer a thing of little or no value, it is
 ancient, before a thing of true n, u
 'tis modern; a brats Coin of G
 uctis

before a modern one of equal Bulk, though of the best Gold. And in the next place we must consider, what Things were invented and used by the Ancients in their Heathen State, to adorn their Idol-worship, uphold their gross Superstitions, or to manifest a Grandeur, more than human, as they suppose, and how unbecoming most of these Arts had been to the same Places, and in the same Persons, after they were converted to the Christian Faith, when there was a Necessity almost, that many of these Arts should be abolished, as ministring to Idolatry, Vanity or Pride. Let these *Postulata* be granted, and then the Question will be reduc'd into a small Compass, whether of those Arts and Sciences, which are necessary to the Welfare and Conveniency of human Life, greater Improvements were made by the Ancients than Moderns, and so our Loss, by the Carelessness or Ignorance of Posterity is irrecoverable; or whether the Ancients had more Arts, or better ways of managing them, or had a deeper Knowledge of Things necessary for the Support of Man's Life, or the Benefit of Society, than the Moderns have, of which the greater Part are lost, which may, without great Difficulty, be clearly resolved; and shall be endeavour'd under these general Heads.

I. Of Arts and Sciences, and the whole State of Learning.

II. Of Mechanical Arts and Trades.

III. Of the Arts and Engines of War.

Of every one of these, it must not be expected that all the Improvements of the Moderns can

can be particularly mentioned and compared with the Inventions or Improvements of the Ancients: It will be sufficient to point at the Chief of them, and shew briefly on which Side the Balance turns, without any Partiality to either.

I. Of Arts, and Sciences, and the whole State of Learning. And here it must be granted, by all equal Judges, that since the late Invention of Printing has been communicated to the World, the Moderns have been put into a much better and easier way of attaining the Knowledge of all Arts and Sciences than the Ancients had. Books of all sorts have been made more plentiful and cheap; the Writings of the Ancients have been brought out of their Cloisters and Retirements, and the Press has rather wanted worthy Writers to commend to the World, than Authors the Press to publish their Works. Libraries are infinitely increased, and though that of *Ptolomy Philadelphus* in *Egypt*, and others at *Constantinople* and *Rome*, are much celebrated by Lovers of Antiquity, yet it is morally impossible they should equal the Modern Libraries of the *Vatican* at *Rome*, *Medicean* at *Florence*, *Venetian* at *St. Mark's*, the *Bodleian* at *Oxford*, and other Libraries in great Multitudes in Colleges, Monasteries, Churches, Kings and Noblemens Palaces, and with private Men; and that chiefly, because many of the most celebrated Writers were not in Being, and if they had been, the Treasures of the greatest Princes could not have paid Transcribers, if enough of them could have been found.

And if the Moderns have so much Advantage of the Ancients, as to the Means and Instruments

ments of Learning, why should it be supposed that they come short of them in the Knowledge of Arts and Sciences? Do they want an equal Capacity, as if, like Man, the older the World grows, the more it inclines to Stupidity and Dotage? No, there was indeed an Age or two, when Men seem'd altogether to degenerate into Sloth and Laziness, and so of course into Ignorance; but after the darkeſt Night, many times comes a bright and glorious Day: So after theſe Times of Ignorance, roſe a Generation of Men of vigorous, inquiſitive and ſubtil Spirits, who, aſham'd of the Sottiſhneſs of Priests and Monks (the Men that alone profeſſed the Knowledge of Letters) ſet themſelves to recover the loſt Arts, and in a few Years, not only brought in an earneſt Emulation of underſtanding the learned Languages, and fetch'd the ancient Authors out of the duſty Cells, to which for ſome Ages they had been chained as Priſoners in a Jayl, but printing them as correct as they could, caus'd them to be diſperſed through all Parts of the civiliz'd World; and ſo were the Inſtruments, not only of a Reformation of Religion, but of communicating all uſeful Knowledge to all Perſons and Places.

Near a whole Century was ſpent in this Work, and 'twas thought a ſufficient Employment for the moſt laborious and ingenious, to inform themſelves in the Writings of the Ancients, and ſee how far they had gone in the Knowledge of Nature and Art, and communicate their Sentiments, by Systems, Abridgments, and Tranſlations to ſuch, as were to be trained up in Learning in the Schools or Universities. But all theſe Studies and Searches, did only ſerve

to quicken Mens Appetites the more after Knowledge. They found the Philosophy of the Ancients wrapped up in dark and obscure Terms, clogged with many strained Principles and Maxims, and ty'd up to many tedious Distinctions and Rules, which rather burthened than instructed the Mind, and seem'd devised on purpose to conceal Ignorance by certain strange Amusements. It seem'd to these wise and ingenious Persons, a thing very disagreeable to the human Soul to be confined in its Thoughts to the Dictates of the most learned, and fellow Errors, though in good Company; whereupon, making use of what the Ancients had well invented and carried on, they endeavoured to bring it to a Perfection, and wherein they had erred, to rectify and amend it, and of what they were wholly ignorant, to bring it into the Light, that the World might not want any useful Arts or Sciences. Hence it is, that within the Compass of less than a Century last past, such wonderful Improvements have been made in most of them, that the Ancients can hardly be thought to have understood much more than some Principles or Elements of them.

It would take up many large Volumes to enlarge particularly upon the great Improvements which have been made in every Art by the Learned, in our own and the neighbouring Nations, who, having for some Years past united themselves in a Body (call'd a Royal Society, because much approved of, and established by a special Grant of King *Charles II.*) and divided their Inquiries according to the Genius of every particular Man, have brought in such large Additions of all true and experimental

mental Knowledge from all Parts of the World, that Men may seem to have pleased themselves in a learned Ignorance in former Ages, rather than to have attained any true and thorough Knowledge of Things, as may be made evident by many special Instances, but must be contracted, that they may not become tedious to the Reader. And,

1. Logick, or the Art of Reasoning, which, of all Arts, is one of the most useful and necessary, because of that frequent Occasion there is of communicating Mens Thoughts, Opinions and Designs one to another, either for their Instruction, Conversion or Direction in all Affairs of Life, is mightily improved. We are taught in a clear distinct Method by the old Logicians, not how to reduce Words or Things to certain Heads, as the *Genus*, or *Differentia*, the several Predicaments, &c. but to form in our Minds, first, just Ideas of Things, by considering them in their own Natures, and in the several Relations to other Beings; and having establish'd a just Distinction of them in our Minds, connect them so suitably with one another, as to produce certain and infallible Consequences and Conclusions. This way of reasoning, renders all Arguments certain and demonstrative; for there is no Sophism or Fallacy in Discourse (though our ancient Logicians reckon up many) but in connecting Things, either not rightly understood, or used in some disagreeable Sense or Respect, and so making four Terms in the Syllogism. This Art of Thinking, is the highest Improvement of the human Understanding, and is justly attributed to Modern Invention.

2. Mathematicks hath almost arrived at a full Perfection, by the Study and Industry of the learned Men of these later Ages. Arithmetick can now teach us, not only to sum up, divide, multiply, and abstract from whole Numbers, but collect together the minutest Parts and Fractions, into one plain Total. Astronomy, through those Optick Glasses, which are not only the Invention, but rare Improvements of the ingenious of this present Age, is now become an easy and familiar Science, a great Number of Stars being by Telescopes first discover'd, and now continually visible, to the great Advantages of Navigation, which has received a like Benefit by the Geometrick Skill of the Mathematically Learned, who have so exactly discovered all the Degrees of Latitude, that Sailors can, without much Difficulty tell, in the broadest part of the Ocean, whereabouts they are, at what Distances from Shore, and from what Country. Scarcely any thing in this Nature has been able to pose them, but the Longitude of the Globe, which now seems to be near a Discovery, because a large Reward is promised to the Author of it; which shews, that it was rather kept secret, than not known, and only wanted an Encouragement to bring it abroad; all which, Antiquity had little or no Skill in.

3. Physicks, or Natural Philosophy, by which the Nature of created Beings are made manifest to us for our Use or Avoidance, is another Science, which of late has received mighty Improvements, by modern Observations and Experiments: Antiquity had their Systems of Natural Philosophy, as they call'd them, but made

made up of some few Definitions, groundless Suppositions, idle Questions, obscure Terms, and empty Disputations. They looked only upon the Surface of Things, and never divid'd into the inward Recesses of Nature, where the Properties and Virtues of every Creature lie, but concealed their Ignorance under the Names of occult Qualities, Privations, Entelechia, and the like Terms, which passed for good Philosophy with their credulous Scholars. But the learned Men of our Age will take nothing upon Trust, but bringing to a strict Examination the Form, Figure, and Qualities of every the smallest Animals, as Mites, Ants, &c. lay open to our view the beautiful Bosom of Nature, and present to our Eyes the plain Motions and Operations of Things, if not for our own Use and Benefit (as in most Things it has happen'd) yet for the Advancement of God's Glory, in so wisely forming the smallest Creatures. And how many of these have our sagacious Searchers found out, which all the Ancients, though in their Generation wise, did know nothing of, is impossible to name?

4. Medicks, or the Art of Medicines, under which we may comprehend all the Methods of healing, whether by preparing Medicines, or applying them, as Chirurgery, Chymistry, or Medicks, all these are very much improved, by the Industry and Experience of the learned of our later Times. What Multitudes of Drugs of very excellent Use are fetched from all Parts of the World, and united in the Apothecaries and Druggists Shops, for the more speedy and certain Preservation and Recovery of the Health of human Bodies? No one Country bears all Things

ings necessary for Medicine, more than for Food of its Inhabitants, we must fetch them from others; and such is the Industry of these Ages, that as many Things in our own Country are better known than formerly, so we have learned where the *Materia Medica* may supply'd to us from all Parts. The Anatomy of Man's Body is fully discovered, by frequent Dissections, the Nature and Use of all Nerves, Tendons, Glands and Bones, is at length explained; the Circulation of the Blood is curiously observed, that our Physicians know how many times it moves round the Body in twenty four Hours. Wonderful almost are many Operations in Chirurgery, never expected by the Ancients; as cutting of the Stone, with little or no Loss of Blood, and a very small Danger of Life, breaking of distorted Limbs and Bones, and placing them in their right Form; and that with so much Art, as to be as useful in their natural Position, and without any deformity to the Patient: Nay, in Cases of dangerous Quinsseys, making an Aperture in the Oesophagus, or Wind-pipe, that the Patient may draw his Breath that way, while his Throat is cured, and so Life may be preserved. The Chymist by his Fires hath found out a way to extract Medicines of extraordinary Force and Use, from Bones, Stones, Horns, Poisons, Minerals, dead Flesh, and a thousand other Things, not more to the Admiration, than Benefit of Mankind. These Arts, though practis'd most of them in some degrees by the Ancients, yet far short of the Improvements made by the Moderns, who are daily trying new Experiments, and making

making more profitable Additions to their several Arts.

5. Geography, or a Description of the several Nations and Countries of the World, has also been much improved by the Navigations of the Protestants, and Missionaries of Popish Countries. The greatest part of the new habitable World, was altogether unknown to Antiquity. The *Roman* Arms, which were thought to have brought all Nations under their Dominion, never reached many flourishing Kingdoms, with which now are great Seats of Traffick and Merchandize, and of which we have very useful Accounts, of their Laws, Manners, Products, Religion and Customs, to the no small Advancement of the Wealth and Happiness of the trading Nations of *Europe*. Thus *China*, *Japan*, many Parts of the *East Indies*, the Spice-Islands, the whole Continent of *America*, with the appendant Isles, from whence yearly are fetched such vast Quantities of Gold, Silver, Silks, Spices, and many other rich Commodities, were unknown altogether to the Ancients; but are now so well known to our Age, that in them we have established Factories, and a continual Traffick to their Ports, as if they were our own native Countries, continually importing into them what they need, out of our Plenty; and again, bringing from them what our native Soil does not at all, or at least not so plentifully produce. There is scarce any Nation, but by this Means the Inquisitive have had an Opportunity to search into their Customs, Laws, Religion, Animals, Fruits and Manufactures, and single out what might be of Benefit to themselves and Countrymen; as
may

may appear from a Collection of Voyages and Travels not long since printed, which are great Advantages not enjoy'd by the former Ages, and must be accounted the Happiness of the present.

Most other Arts and Sciences have in these later Ages been looked into by the ingenious, with equal Application, and received by them no small Additions and Improvements, as Musick, Writing, &c. But I shall conclude this general Head with such Improvements, as have been made in these later Times in that Art of Arts,

6. Christian Theology, or the Knowledge of Divine Things, derived to us by the true Understanding of the Holy Scriptures. The most ancient Fathers of the Christian Church, being plain, well-meaning Men, and living under persecuting Governours, had no Leisure to enquire into the Mystical Doctrines of Christianity, but thinking it sufficient to believe in one God, and one Lord Jesus Christ, and one Spirit, were not farther solicitous about the Articles of Faith, than to bring forth good Works, and in the daily Exercise of an humble Devotion, expect the Crown of Martyrdom. When the Church was settled in Peace under *Constantine* the Great and his Successors, many Philosophers being converted to Christianity, great Differences of Opinion arose, and many knotty Questions were started about the eternal Generation of the Son of God; the Procession of the Spirit from the Father and Son, the Union of the two Natures in the Person of Christ, Freedom of Will, Predestination, and many other difficult Points, both Parties alledging the

the Scripture in their own Defence. The School-Divinity, which succeeded, did not much help to put an end to these Disputes, but by in many nice Distinctions and Positions, enabled the contending Parties to go on eternally in their Debates, all endeavouring rather to make the Scripture speak what they pleased, than hear it speak the Truth. The learned Men of these later Ages have taken a quite different Method of knowing the Christian Doctrine, which is, by enquiring into the true Method of interpreting of the Scriptures of the New Testament, not according to the Usage of the Native *Greeks*, but *Hellenists*, who being Jews by Birth, but using the Language of the *Greeks*, gave it such a Turn according to the Hebrew Idiom, that it became of a quite different Signification, and so they gained a clear Sense of many Places, before obscure; and then paraphrasing the whole Text with easy and plain Words, made the Doctrine of the New Testament very obvious and intelligible, and freed it from many of the harsh and corrupt Glosses of the Ancients and Schoolmen. So that Divinity is now become almost a clear different Science, a familiar Instruction in Matters of Faith and Manners, readily apprehended by docible and unprejudiced Minds, obliging us not to pry nicely into the Nature of the Divine Persons; but, contenting our selves with what is revealed, bestow all our Time and Labour in framing our selves to such a cheerful Obedience, as may prove our Faith rather sound than curious.

2. The Mechanical Arts, tho' by former Ages esteemed below the Regard of the Learned,
have

have not been contemned by the inquisitive of the later Ages. They have had a more serious Regard to the common Good, than to suffer their Minds to be always hovering aloft in Speculation; and as they have endeavoured by all Means to make the liberal Sciences more practical, so they have not disdain'd to look into our Manufactures, Country-Business, and common Shop-Trades, that finding them any ways defective, they may make such Additions and Improvements, as might render them more easy and gainful, not to themselves, but to the several Artificers. And though these Attempts met at first with no small Discouragements, even from the Mechanicks themselves, whose Good alone was intended, yet when they saw their Labours answered by Success, they have valued their own Arts the more, because of the Improvements which have been made by these ingenious Inquirers. It would be endless to enumerate all the Particulars in this kind, and shew almost in all Trades, what wonderful Improvements have been made by their Means alone, either in discovering new Things, altogether unknown before, or devising such Tools and Instruments, Methods and Engines, as have made the Work more curious, and of much quicker Dispatch. I shall instance in some of the Principal only, and shall not allow my self in them to mention all Particulars, lest I become voluminous. I shall begin with,

1. Agriculture, or, as we usually call it, Tillage, Husbandry, or Country-Business, including under this Name, Gardening, in all its various Parts, as the most ingenious of all

manual Arts, and the most becoming Men of all States and Conditions, because 'twas the Employment to which God at first created us; and, if we consult our Inclinations, most Men will find themselves naturally addicted to. The *Romans* of old had reduced this Knowledge to something of an Art, as we may judge from the Treatises of *Varro* and *Columella* about Husbandry; but how infinitely short they come of our modern Improvements, will be easy to judge, if we take notice of the Particulars following.

It is one of the first things to be known in Husbandry, of what Nature the Soil is which Men are about to cultivate, sow or plant. The Ignorance of this Point has occasion'd the loss of much Cost, Labour and Time, both in digging, ploughing and manuring. To instruct our Husbandmen and Gardeners in this Point, the Learned in these later Ages, have made a particular Inquiry into the several sorts of Earths, Composts and Dungs, and describing their Natures, have given such Directions to know them by their Colours, Contexture, Brittleness or Clamminess, and how to apply them accordingly, that were they diligently attended to, they would make a mighty Addition to our Plenty in general, and prevent many of the Misfortunes of particular Men, who are ruined by this Art merely for want of Skill. No Land could be barren, if the various kinds of Composts and Earths were well understood, and rightly apply'd; nor could any Man sow in vain, if to his well-manured and cultivated Earth, he knew what Seed were most proper for a Production, which cannot well be mis-

ken, if the Nature of the Soil and Seeds be well known, as by their Descriptions they easily may.

And because the next Requisite to Fertility; after the Earth is well prepared, is sound and good Seed, and Preservation of it, when it is committed to the Earth: These judicious Inquirers have found out Ways to impregnate Seeds, by steeping them in rich and fat Liquors, which will make them fructify and flourish in barren Soils; and to free them from Smut, Worms, and the like, by liming them, and other Means, which are great Improvements in this Art.

But above all other Parts of Husbandry, Gardening hath in this later Age received the greatest Improvement, as may easily be conjectured from the great Rents given for Land proper for such Tillage, near Cities and Market-Towns, from twelve to twenty four Pounds *per Acre*, which could not be afforded, were not the Product of the Ground almost incredible, to answer their Labour and Charge of Seeds, Stocks, &c. with so large a Rent. And indeed nothing but the Exquisiteness of Art and Management could produce so great an Effect. All sorts of Trees, Standards, and for Walls, of the best kinds, both English and Foreign; all sorts of Herbs, as well for Physick, as the Kitchen and Table; all sorts of Roots and Flowers, Muskmelons, Exotick Plants, and Perennial Greens are here produced, and that in such Multitudes, that all Charges are abundantly answer'd, and the Artists many times enriched, by the plentiful Fruits of a few Acres of Land.

Farther Attempts and Improvements are made, and daily carrying on, by transplanting out of one Land into another of the same Situation, in respect to the Heavens, which have succeeded already to the great Advantage of the Undertakers and Adventurers; as, the *Oranges of China* have of late been brought over into *Prunagal*, and have thriven so wonderfully there, that by their Transportation into our own, and other Nations, they have brought a considerable Gain to that Kingdom. Nor has the Removal of Vines from the Banks of the *Rhine* into the *Canaries*, wanted its desired Success, for they have there yielded a far more delicate Juice than in their native Soil; by which Means, the Rocks and Sun-burnt Ashes of these Islands, are now become one of the richest Spots of Ground in the World. And why may not other as profitable Experiments of the like Nature be made, by conveying the *Eastern Spices*, and other useful Vegetables into our *Western Plantations in America*? For it can hardly be imagined why they should not thrive as well in the *West* as *East Indies*; and why the Soil should not be as suitable for them where the Sun sets, as where it rises, seeing both Parts may lie under the same Influence of that and the other Celestial Bodies.

And much easier may it be effected to remove the profitable Productions of one Country into another of near Situation, as *Flax* into *Ireland*, where are many vast Tracts of Ground, now only possess'd by wild Beasts, or *Tories*; or from one part of the same Country into another, as the *Kentish Cherries*, and *Hen brasses Apples* into all Parts of *England*, that by produ-

rising the same sort of Tillage in the whole Nation, all Parts may be equally enriched. It is very evident, that our Gardens and Orchards are stored with many delicious Fruits, as Apricocks, Peaches, Pears, &c. from our Neighbours the *French*, and, no doubt, but the prying and searching Genius of such as enjoy the Gain and Pleasure of this Art, will make new Improvements daily, by inoculating, grafting, and searches out of Curiosities of all kinds.

From the Surface of the Earth have these ingenious Persons descended into the Bowels of it, and made many new and profitable Discoveries, not only for the Benefit of Husbandmen, but the Advantage of other Arts; for by a new kind of Augur to bore the Ground with, they have found out divers sorts of Earth, some of them proper to mend and restore barren and stony Land, naturally unfit for tilling, or worn out with long cropping; by which Means the Grounds distant from Market-Towns, where Dung cannot be had, may be repaired and made fruitful with Clays, Marls, Looms, and other Earths, more suitable for Grass and Corn than the Dung of Animals: others proper for Artificers, as Potters, Pipe-makers, Founders, &c. One sort of late has been found out, which hath made Wares of many sorts, not much inferior to Porcelain, or China-Wares, so much admired and sought for by our Ladies and Gentry.

By the Consideration of the divers sorts of Earths, they have been lead to take a View of divers kinds of Mines, and the Workmen in them, as Coal-Mines, Lead and Tin-Mines; and here they have by their Experiments, produced

produced divers useful Inventions, as about refining Tin and Lead-Oar more easily and exactly; hardening Steel so as to cut Porphyry with it; and again, softening it so much, as to make it more easy than usual to be wrought on; impregnating Lead-Oar with Metal after it has been freed from Dross; making Quick-silver; distilling of Coal; extracting a much greater Quantity of Silver out of the Lead-Oar than is commonly done; reducing Litharges into Lead several Ways; changing Gold into Silver. &c. And because our Workmen in Mines suffer many Inconveniences from Damps arising in their Mines, carried many Furlongs under Ground, they have found out Ways of recovering them from the Fatal Effects of those dangerous Vapours.

Here it will not be impertinent to mention the Art of drawing Salt-Petre out of the Earth, a modern Invention certainly, altogether unknown to the Ancients; for though (as *Pliny* in his *Nat. Hist.* l. 31. c. 10. relates) they had such Minerals as they called *Nitrum* & *Apronitrum*, they had no Skill at all to refine them from the Earth, and common Salt mingled with it, nor from that foul Oil, which always accompanies it in great Abundance. But our Moderns have not only found out the Places where it grows in great Plenty, as in some Stables, Pigeon-houses, Cellars, &c. which the Artificers can easily discern by the bitter Taste of the Earth, but to refine it from all its Fæculency and Oil, by which it becomes useful for many Things, but especially for that wonderful Thing called Gunpowder, the Invention of which is ascribed by the Germans to *Constantin Aulitzer*, or *Berthold Schwartz*.

Schwartz a Monk of *Friburg*; who taught the *Venicians* the Use of it about the Year of Christ 1380.

With the Observation of Earth, they have joined the particular Consideration of some extraordinary Stones, as of Diamonds, how to increase the Lustre; the *Bononian* Stone; the *Indian* Stone at *Fetipoca* near *Agra*, which may be cleft like Fir-Wood, as if it had a Grain. The People make but a Mark upon the Stone, and then with a Wedge and wooden Hammer, cleave it to what thickness they please, and pave their Houses with it in Pieces about a Foot square. But because the Loadstone is above all others the most useful in Navigation, which is now grown the common Business of all the richest Nations of the World, they have bestowed much Pains to find out the Nature of it, that that Art may arrive at the greater Certainty. And to this End, they have examined into the Strength of several Sorts of Loadstones, some of them *English*, and tried, what Weight they would bear; considered the Variation of the Loadstone in two *East-India* Voyages, and other Places; and to prevent the like Accidents for the future, have made many magnetical Experiments, as about the best Form of Capping them; of the most convenient Shapes of the Needles, their several Lengths and Bignesses; the various Ways of touching Needles on the Loadstone, and making the same Pole of the Loadstone both to attract and chase the same End of the Needle without touching it; the Variation at *London*; the magnetical attractive Power at several Distances, and through several Medium, as Water, Air, Wood, Lead,

Stone, &c. which have had such an Effect, as was desired for the general Benefit of Navigation.

In the Veins of the Earth, they observed the Passages of Springs, which are the Originals of Rivers, Lakes, Meers, and Ponds, and from thence were invited to consider their several Natures, and by their Experiments have found them of divers Qualities fitted for several Uses; as some of an oleaginous and bituminous Nature; others petrifying, others medicinal; some fit, others altogether unfit to be used in brewing Beer or Ale. They have discovered a Spring in *Lancashire*, which will presently catch Fire on the approach of any Flame. And being employed on this Subject, they have made many curious Experiments and Observations about Water in general; as of the rising and disappearing of Springs; of artificial Springs; of the Water-blasts of *Trivoli*; of the shining of Dew in a Common of *Lancashire*; of the comparative Gravity of salt Water and fresh; of the different Weight of the Sea-Water in several Climates and in several Seasons; of the Pressure of Waters at the several Depths under its Surface; of the propagating Sounds under the Water; of the resistance of Waters to Bodies of various Figures, as they are moved on its Surface, and its several Degrees of Force, that Vessels for Sailing may be made of the best Form for lasting and Expedition; the Expansion and Condensation of Water by Heat and Cold, and several Ways of Pressures; the *Torrecellian* Experiment tried with Water; the different Weight and Refraction of warm Water and cold; of the living of some Fishes, and the dying of others in the
Water

Water, after the Pressure of the Air is taken away in a rarifying Engine; of raising Water above its Standard by Suction, with many such useful Experiments.

2. Handicraft Employments, notwithstanding they have been most of them used many Ages, yet have received most of them many Improvements from the Experiments of these learned Inquirers. It was the Fault of the Ancients, that they made all their Natural Philosophy utterly useless in respect of the good of Mankind, reserving it for the Retirements of their wise Men, without any Help or Benefit designed for the Vulgar, either in City or Country. But our Modern experimental Philosophers are now resolved to bring Learning down again into Mens Sight and Practise, and put it into a Condition of standing out against the Invasions of Time and Barbarism, by establishing it upon such a Foundation, as that Men must lose their Lives and Hands, before they can be made to forget, or willing to part with such Pleasures and Conveniences of Life. What they have done in this kind, may be reduced to these two Heads:

1. What Arts being of old very imperfect, they have almost brought to the highest Pitch of Perfection.
 2. What Arts they have much helped by inventing new Instruments for the better and more speedy working, and accurate performing.
1. As to the Arts, which Antiquity indeed had some Knowledge of, but have been derived

down to us very imperfect. These the Learned of these later Ages, have by their Experiments brought to almost the highest Perfection. We may instance in a few ; as I. The applying of the Motion of Pendulums to Clocks and Watches, by which the Measures of Time are brought almost to an exact Regulation. The Honour and Reputation of this useful Invention, must be attributed to *Hugenius*, a learned Gentleman of the *Low-Countreys*, who has bestowed his Pains on many Parts of the Speculative and Practical Mathematicks with wonderful Success : But as the Beginnings of all Arts are a little rude and unpolished, till the little Jogs are rubbed off by Experience and Time, so this worthy Gentleman would not venture it into the World, till he had received the Confirmation and Approbation of our *Royal Society*, who having made divers Trials, from which he made several Alterations and Amendments, brought it to an admirable Perfection : For they first tried the Motion of Pendulous Bodies of various Shapes, and contrived the best Figure (as near as they could) of a Pendulum for Motion, determined the length of Pendulums, and found out the Velocity of Motion propagated by a very long extended Wire, which they did not so much for the Use of Clocks, as in Order to the explaining the Motion of the Planets. They made also farther Trials of the circular and complicated Motions of Pendulums, to explain the Hypothesis of the Moon's moving about the Earth, and compared the Motions of a Circular Pendulum, with the Motion of a straight one, by which Means the Motions of Clocks and Watches are brought to almost an unerring Exactness

ctness, of which the Benefits are almost infinite.

2. The Excellency of our Optick Glasses. The *English* of late Years, have gotten an Art of making Glas finer than that of *Venice*. This Invention was at first brought into our Country, by the Care and Expence of the late Duke of *Buckingham*, and has mightily been advanced by the Industry of the Learned, who have found out Instruments for grinding these Optick Glasses, in the exactest Manner possible, and adapting them to the Sight. Many are the excellent Fruits of their Labour in this Kind, for they have invented double Telescopes, and several single ones, but of divers Lengths, from six to sixty Foot long, with a convenient Apparatus for the managing of them, and several Contrivances in them for measuring Diameters, and Parts of the Planets, and for finding the true Position and Distance of the small Fixed Stars and Satellites. By help of these Instruments it is, that Astronomy is come to a great Perfection; and many Things otherwise indiscernible in the Heaven, are come to the Knowledge of the curious Inquirer; as about *Saturn*, its Proportion, and the Shadow of its Ring; the Phases of *Jupiter*, its Spots, Verticity, and Satellites; Spots in the Lady of *Mars*, and its whirling about its own Centre; and the Eclipses of the Sun and Moon, most of them never before taken Notice of by any of our Astronomers. So considerable an Invention is to be observed from so mean a Matter. And as by Glasses, Things distant are made evident to our Sight, so also many Things that are present and near us, but through their Smallness escape our Eyes, are by another Sort of Glasses, called Microscopes, made

plain to our Observation. Before this Invention, the chief help that was given to the Eyes by Glasses, was only to strengthen the dim Sight of old Age; but now by Means of this excellent Instrument, we have a far greater Number of different Things revealed to us, than were contained in the visible Universe before, and we by the Use of them seem to be in a new World at Home. Thus in two most useful, though mean Arts (as they are esteem'd) have the Learned of these Days signalized themselves.

2. And in all the other Arts they have contributed so much, that they may be esteem'd no small Benefactors to them, in advancing their Perfection, and inventing Instruments for the more easy and exact working of them. It would be too tedious a Work to give a full Catalogue of them all, and therefore the most useful shall only be here mention'd, *viz.* An Hoop of the fixed Stars in the Zodiack, for the speedy finding of the Imposition in the Ecliptick, and for the knowing the Extent of Constellations. A great many new Ways of making Instruments for keeping Time very exactly, both with Pendulums and without them, whereby the Intervals of Time may be measured both at Land and Sea. An Universal Standard or Measure of Magnitudes, by the help of a Pendulum never before attempted. Several Sorts of Instruments for the compressing and rarifying the Air; as also a Wheel-Barometer, and other Instruments for finding the Pressure of the Air, and serving to fore-shew the Changes of Weather. An exact Pair of Scales for trying a great Number of Magnetical Experiments, and finding the
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most exact Gravity of several kinds of Bodies. An Instrument for measuring the Swiftneſs and Strength of the Wind. An Instrument for raiſing a continual Stream of Water, by turning round a moveable Valve within the hollow of a cloſe Cylindrical Barreſ. Several kinds of Thermometers for diſcovering the Heat or Cold of the Air. An Instrument for planting of Corn. Divers ſorts of Hygroſcopes made with ſeveral Subſtances, for diſcovering the Dryneſs and Moiſture of the Air. Several kinds of Ways to examine the Goodneſs and Badneſs of Water. Several kinds of Otacouſtics, or Instruments to improve the Senſe of Hearing. Divers Models of Chariots, and other Instruments for progreſſive Motion. A Chariot-way-wiſer meaſuring exactly the Length of the Way of the Chariot or Coach, to which it is applied. An Instrument for making Screws with great diſpatch. A Way of preſerving the moſt exact Impreſſion, of any Seal, Medal, or Sculpture, and that in a Metal harder than Silver. Many more they have invented, which are omitted, becauſe theſe are ſufficient to ſhew, that there is ſcarcely any Art or Trade, how mean ſoever, but they have made ſome conſiderable Additions to it for the common Good. And now having conſidered the Improvements they have made in our Arts and Trades by Land, I ſhall proceed to our Maritime Affairs, and ſee if they have vouchſafed that hazardous Employment any Aſſiſtance, which ſhall be my next Head of Mechanical Arts.

4. Building of Ships, and the whole Art of Navigation, with the various Trade and Employments buſied about the fitting out of a Ship either

for Merchandize or War, Fishing or Sailing, or any other Business or Work at Sea, have all been particularly considered in these later Ages by the Learned, and by their Industry and Experiments much improved. Antiquity gives us an Account of Ships, and Sea-fights, Merchandizes and Piracies, as if Navigation had come to some Perfection in those Ages, when the *Phenicians* and *Tyrians* were great merchandizing Cities, and *Xerxes's* Fleet maintain'd a Sea-Fight with the *Gracians*: But alas! their Ships were little better than large flat-bottom'd Boats, and their Voyages little more than creeping by the Shores from one City to another, or to some Islands adjoining. They knew nothing of the Great Sea: *Hercules's* Pillars, now called the Straights, was with them the End of the World, and all their Sail was within the *Adriatick*, *Archipelago*, and *Mediterranean* Seas. 'Tis not much above a Century since the *Portuguese*, who first adventured into the Great Sea, and discovered many Countries in *Africa* and the *East-Indies*, yet had neither Skill nor Courage to venture into the wide Ocean, but prosecuted all their Trade by Coasting. Ships of great Burthen, and the Mariners Compass, by which Sailing in the main Ocean became feasible and safe, are the Invention of a late Posterity, and have within a few Years been much improved by the Inquiries of Sagacious Men; for they have employed much Time in examining the Fabrick of Ships, and have tried what Figures of swimming Bodies are fittest for Expedition, and least apt to be overturn'd, that they might make a true Theory of the Forms of Ships and Boats for all Uses. They have inquired into the
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Nature of their Sails, and other Parts of a Ship, to find in what Fashion their Sails ought to be made most conveniently; the Shapes of Keels; the Sorts of Timber fittest to build them with, and have busied themselves in planting Firs for Masts, and in bettering Pitch, and Tar, and Tackling, for which they doubtless deserve, and have the Thanks of all our Merchants, Masters of Ships, Mariners, and Sailors, who reap the Benefit of their Labours.

Besides, the many useful Experiments about the Loadstone (above-mentioned) they have invented divers other Instruments for the Benefit of Navigation, *viz.* Three several Quadrants made after three new Contrivances, which, tho' they are not above eighteen Inches in the Diameter, and so are easily manageable in any Place by Land or Sea, yet are far more exact than the best that have been hitherto used, either for Astronomical Observations, or taking Angles at Land. Another Instrument for taking Angles by Reflection, by which Means the Eye at the same Time sees the two Objects, both as touching in the same Point, though distant almost to a Semicircle, which is of great Use for making exact Observations at Sea. A new kind of Back-staff for taking of the Sun's Altitude by the Shadow and Horizon, which is so contrived, that though the Shadow be at three Foot distance, or as much more as is desired, yet there shall not be the least Penumbra, and the Shadow may be distinguished to the fourth Part of a Minute. Several kinds of Levels for finding the true Horizon, when by one, not above a Foot long, the Horizontal Line may be found without.

out the Error of many Seconds; all which are of great Use to Sailors.

Other new Inventions they have, which, though of no great Benefit in Navigation, yet may be of Advantage to Merchants and Travelers, viz. A new Instrument for fetching up any Substance from the Bottom of the Sea, whether Sand, Shells, Clay, Stones, Minerals, or Metals. A new Bucket for examining and fetching up whatever Water is found at the Bottom of the Sea, or at any Depth, and for bringing it up without mixing with the other Water of the Sea, through which it passes. Two new Ways of sounding the Depth of the Sea without a Line, for examining the greatest Depth of the Sea in those Parts that are remote from Land; with many other Experiments both useful and curious.

The Pearl-Fishing about the Island of *Ceylon* in the *East-Indies*, is a late though very gainful Sea-Trade. The Manner of it is this: At a set time of the Year the Divers come with their Boats, bringing with them a certain Quantity of square Stones in every Boat, upon which they go down into the bottom of the Sea, having given a Token to their Companions, when they think it Time to be hauled up. Each Stone pays a Tribute to the Company. Before they go down, they provide against the Danger, by making their Wills, and taking leave of their Friends, and then fastning the Stones to their Feet, go down to the Bottom of the Sea naked, without any Artifice. The Oysters or Shell-fish which they bring up, they do not open, but lay them on Heaps or in Holes by the Sides of the Shore. When the Diving Time is ended,

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the Merchants come and buy these Heaps, according as they can agree, not knowing whether they shall get any Thing or no. 'Tis very probable, this Trade might be more gainful and less hazzardous, if it were managed with more Art (for it does not appear, that these Divers are any other, than such as Poverty or Covetousness has made desperate) and therefore the Learned have invented several Instruments to render their Diving more safe, and for a longer Time, *viz.* A Bell, wherein a Man may continue at a considerable Depth under Water, for half an Hour without the least Inconvenience. An Instrument wherein the Diver may continue long under Water, and walk to and fro, and make use of his Strength and Limbs, almost as freely as in the Air. A new Sort of Spectacles, whereby a Diver may see any Thing distinctly under Water. A new Way of conveying the Air under Water, to any Depth for the Use of Divers; which Inventions, were they put in Practice, would doubtless conduce much to the Profit and Safety of these bold Adventurers. Thus have I given an Epitome of some of our Modern Improvements in Arts and Sciences, which being but a few of many, such as desire a fuller Knowledge of them, may have recourse to our *Philosophical Transactions*, several ingenious Pieces of the Learned Mr. Boyle, and others of the *Royal-Society*, which keeping a Correspondence with most of the Learned in all Parts of the World, will fully inform the Curious and Inquisitive, how much all Arts have been of late wonderfully improved, and brought to a Perfection far greater, than they were in former Ages. There is yet one kind more, that
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ought not to be omitted though it be but briefly touched on; and that is,

3. The Arts and Engines of War, which though it be to be wished there never had been occasion for, especially among Christians, to whose peaceable Profession Wars are as great a Disgrace, perhaps as Vice; yet since the same Engines and Instruments of War, which serve to carry on the Designs of Usurpation, Tyranny, and Ambition, are as useful for the Defence of Innocency, Property and just Dominion, there can be no good Reason given, why they may not come under our Consideration, as well as any other Things. Indeed, the Art of Fighting was so much practised and studied by the Ancients, from *Nimrod* down as far as *Augustus Caesar*; when to make Room for the Prince of Peace, *Swords were turned into Plow-Shares, and Spears into Pruning-Hooks*; that 'tis a Wonder, any little Stratagem, Fortification, or Weapon of War, could have escaped their Knowledge; especially the *Greeks* and *Romans*, who were very curious in the discipline of War, yet in all these the greatest Changes and Improvements have been made by modern Discoveries, as a few Instances may clearly evince. And,

1. As to the Weapons or Instruments of War, if those must be counted the most excellent and useful, which make the greatest Destruction, of Enemies, never any Thing came near the modern Invention of Guns and Gunpowder, of which we never find so much as the least mention in Antiquity, nor can the Use of them be traced higher than the Battle of *Fossa Claudia*, wherein the *Venetians* by the Help of these, then unknown Engines of War, obtained a notable Victory

Victory over the *Genoeses*, A. D. 1380. Divine Providence may seem to have given Birth to this terrible Invention, that such unquiet Spirits as stir up Wars, may see the Flashes of his Anger flying in their Faces, and roaring in their Ears, that all Men may grow more peaceable, when they see their Ruin almost unavoidable by War, both by Sea and Land. This Device was destructive enough at first, but has been made much more so by the great Improvements made in preparing the Gunpowder with the best Materials, *viz.* Salt-petre and Brimstone refined, and the Charcoal of Withy or Alder, and in the exactest Proportion, *viz.* six or eight Parts of Petre, and one apeice of the other two, and by the Rules of managing the Guns, made with the finest Art and Form, for which we have several Instruments or Engines: As 1. For the finding the Force of Gunpowder, by Weights, Springs, Sliding, &c. 2. For receiving and preserving the Force of Gunpowder, so as to make it applicable for the performing any Motion desired. 3. For the examining the Recoiling, true Carriage, and divers other Properties of Guns. 4. For trying the Swiftness of Bodies shot out of a Gun: Which Rules being observed in the several Sorts of Guns, as Canon, Mortars, &c. loaded after several Forms, have rendered them the most serviceable Engines of War, which were ever found out. Other Inventions of this kind there are, but not to be reckoned with this, and so shall be superseded to avoid tediousness.

2. Nor are these later Ages arrived at less Perfection, as to Fortifications. The Ancients contented themselves with little more than a
bare

bare Wall about their Towns and Cities, that being sufficient to defend them against the Offensive Weapons then in Use; but since the Sieges of Towns have been managed with Cannon, against whose forcible Assaults single Walls are of little use, the Fortifications of Places have been mightily augmented and altered into Curtains, Battions, Half-Moons, Ravelins, Horn-works, Tenails, Counter-guards, Ditches, and many other Out-works, to render them as impregnable as may be, though nothing at last proves so strong as to withstand the Batteries. The Difficulty of taking them with the great Loss of Mens Lives and expence of Time and Treasure, nor the Impossibility, are the only Discouragement of attacking them, and in this it is, that such fortified Places must depend for Security.

3. As for Stratagems of War, they depend so much upon Time and Place, the Bravery and Ingenuity of Generals and Commanders, that we can have no better Reason to think ours in these later Ages have excelled the Ancients, than by the Difficulty of those Actions, which have been always attended with Success, And of this we have had so great an Example in a General of our own that as considering the Enemy, neither *Cæsar* nor *Alexander* made greater Conquests, so by the Bravery of the Attempts, and the Success attending, we must judge that never designs were better laid, nor better seconded with Courage and Conduct, which will be his more lasting Statue, than any of Stone or Brass.

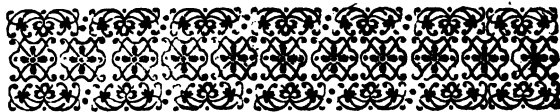
Thus

Thus have we a short Account of the Improvements made by the Moderns in most Arts and Sciences, and many new Inventions super-added. Whether we are yet Losers, by the want of what the Ancients enjoy'd more than we have added or found out, let the equal Reader judge. If we have Reason to lament the Loss of some Things never to be recover'd, we have Hopes, that as many Things of great Use have been lately invented, so if this inquisitive Genius remains in the Men of this Age, as we have no Reason to fear but it will, we may not doubt, but in some few Years our Losses may be wholly recovered. Many Things are yet in Embryo, and daily Experiments are making almost in every Art. The most ingenious Heads are at Work to compleat every Thing, that can be supposed defective in all Things useful, though they are not yet brought to light, till their Benefit can be made more certain. Let the Curious and such as are desirous to know the Progress of such Endeavours, look into the *Philosophical Transactions*, and other Treatises of the *Royal Society* in England, and *Royal Academy* in Paris, and they will find the Learned of this Age, as diligent to retrieve the Loss, as our Ancestors were careless in the Use of the Arts and Sciences. They are making Trials in the Fire and Flame, in the Air, and Water, Mines and Metals, Stones and Vegetables, Beasts and Insects, Heat and Cold, Rarity and Density, Pressure and Levity, Fluidity and Firmness, Light and Sounds, Taste and Smell, Colours, Motion, and all Things, that can be any Ways serviceable to the Good and Welfare of

of Man. And no Doubt, but God will bless their Innocent and Pious Endeavours, so full of Charity and Goodness, that they shall not fail to produce such Effects of their Diligence and Charge, as shall make their Memories precious to a late Posterity, and if not wholly recover our Losses, yet make them inconsiderable. *Amen.*

F I N I S.





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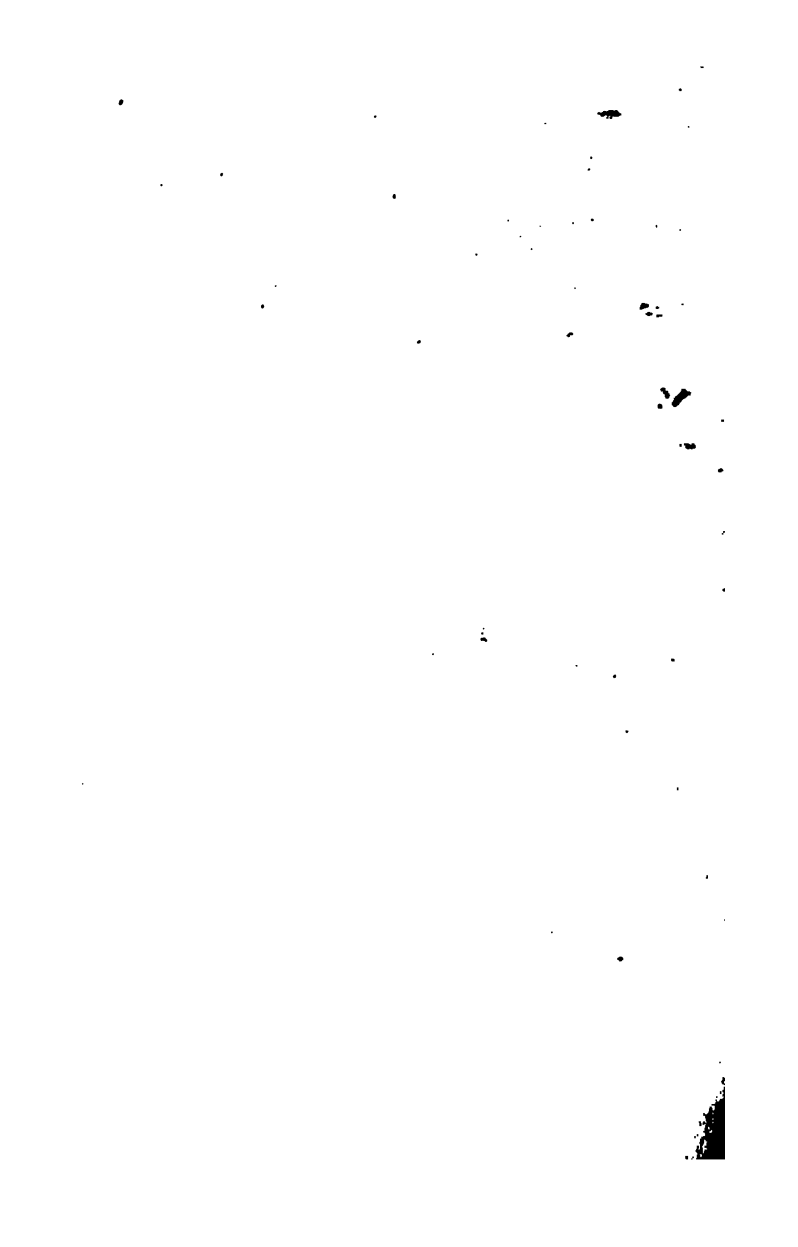
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